AUDIO-VISUAL
HANDBOOK
FOR
INDIA

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BOSTON SUNDAY HERALD
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THE INSTRUCTOR
DAILY AID FOR EVERY GRADE
LIFE
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THE NATIONAL GEOGRAPHIC MAGAZINE
MAY 1942
Map Supplement of North America
The Life of Christ Visualized
BOOK THREE
THE TRIUMPHAL ENTRY TO THE ASCENSION
Abide in Me
ABC BOOK
ABOUT JESUS

THE AUDIO-VISUAL HANDBOOK

FOR

INDIA

A Symposium

Edited by

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MESTON TRAINING COLLEGE, MADRAS.

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PREFACE

Many books have been written about audio-visual aids and their use. This *Handbook for India* is not intended to be a comprehensive treatise on any one aid or technique. It has been written with the purpose of acquainting the worker in India with basic tools and fundamental techniques necessary for the successful use of audio-visual aids in church and school, village and city, hospital and institution. Many excellent books are suggested in the bibliographies for more specialized study.

We consider this survey volume a symposium in that a series of opinions have been drawn together. The list of contributors will indicate something of the widespread use of these aids in India and Pakistan. Each writer is prepared by training and experience to discuss the subject assigned. The Editor appreciates the manner in which the contributors co-operated in condensing material and providing their chapters on time.

The Audio-Visual Aids Committee of the National Christian Council of India and Pakistan is indebted to the Foreign Missions Conference of North America for making this book possible. We express our deep appreciation to Miss Sue Weddell and Dr. S. Franklin Mack for their distinguished leadership and practical assistance.

The Audio-Visual Aids Committee is one of the newer departments of the National Christian Council with three full time secretaries, Dr. Donald F. Ebright, Rev. H. R. Ferger and Rev. R. G. Korteling. They are promoting these aids for the enrichment of the church of Christ in India. This Handbook; *Audio-Visual News*, the quarterly bulletin; the Reprint Series; institutes and workshops are efforts to place the best aids in the most hands for the advance of Christ and His Church.

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INTRODUCTION

DEDICATION TO

B. B. Malvea

An Introduction was being written by the late Dr. B. B. Malvea, M.A., M.Sc., Ph.D., Allahabad, when on Sunday March 19th, 1950, he quietly passed away. His distinguished leadership as Principal of the Ewing Christian College at Allahabad, where every aid and progressive method was welcomed and used, made his name top the list of men who might write the Introduction to the *Handbook*.

The Editor discussed the Introduction in Bangalore on March 3rd, 1950, where Ben had gone to attend the Executive Committee of the Bible Society of India and Ceylon. Rev. H. R. Ferger visited him during his brief illness and found Ben reading the typed-copies of the thirty-three chapters then in hand. With characteristic scholarship and thoroughness Ben said that he wanted to read the *Handbook* and then re-read that CLASSIC TEXT, *Audio-Visual Methods in Teaching,* by Edgar Dale of Ohio State University. With this yardstick he could better evaluate the *Audio-Visual Handbook for India.*

Ben was really too busy to undertake an extra task. He was President of the U.P. Christian Council, President of the India Sunday School Union, member of the Executive Committees of the National Council of the Y.M.C.A. and the Bible Society of India and Ceylon. He was connected with many Christian organizations in which he took a keen interest. He was a devoted churchman giving limitless time to any enterprise of the Church of Christ in India. But the busiest men always find time to accept additional responsibilities and execute them on time. He was at work on the Introduction which was scheduled for these pages when the Lord called him home.

After the burial loving friends clearing his desk returned the manuscript-*Handbook* Ben had been reading in preparation for his Introduction. We record our deep sense of appreciation for all his services to the Christian enterprise and his intelligent interest in the Audio-Visual movement. We express our deep sorrow at his death and our sympathy to his widow and children while thanking God for the life and work of Dr. B. B. Malvea of Allahabad.

CHAPTER I

WHAT ARE AUDIO-VISUAL AIDS?

DONALD F. EBRIGHT[1]

THE use of visual aids is almost as old as man himself. Primitive man conveyed his thoughts by signs, gestures and facial expressions before he developed a vocabulary with which to express them orally. Later came picture-writing (hieroglyphics) and centuries later an alphabet. Within the period of recorded history we find that a variety of visual aids have been employed in education.

Sand, boards, and slate were the predecessors of the blackboard. Objects have been universally used. Euclid, the teacher, told Ptolemy I, his pupil, that there was no one road to learning. The teacher has always been seeking ways and means of manipulating the environment to stimulate learning. Trips were common in ancient Greek schools. Pestalozzi, Rousseau, Froebel, William Penn, Horace Mann and a stream of illustrious men have encouraged the use of aids in education. Two hundred years ago the British Museum invited the people to use its collections. It was a radical day in 1658 when John Amos Comenius, a Moravian teacher, minister and bishop published his *Orbis Sensualium Pictos* (The World of Sense Objects Pictured): an illustrated primer, which was the first illustrated children's book. Written in Latin it continued to be reprinted till as late as 1810 in New York State. The invention of photography by Niepce and Daguerre in the nineteenth century accelerated this movement.

The use of visual materials has not been confined to the secular school for they have been utilized for Christian education since the first century. Stained glass windows in places of worship, pictures on the wall, statues, the liturgy of public worship, ecclesiastical architecture, maps, diagrams, and all the rich pattern of symbolism are all Visual-Aids.

This century, through the invention of projectors that "throw" pictures on a screen, amplifiers that enlarge sound and recorders that put sound on tape, wire or discs the expression, "Audio-Visual Aids" has arisen. The use of this, and other terms may be confusing to the layman but it may be understood as referring to the production, use and evaluation of any type of material or equipment which helps the pastor or teacher reach the mind and heart through the eye and ear. G. Carl Weller has pointed out in *Educational Screen*, October, 1936, page 244, that in the *Bible* the word "nose" occurs twelve times; "skin", about hundred; "tongue", about two hundred; "ear" approximately two hundred and fifty; and "eye" or "eyes" about five hundred and fifty times.

[1] Rev. Donald F. Ebright, B.A., B.D., M.A., Ph.D., 37, Cantonment Road, Lucknow, U.P. is loaned by the Methodist Church in Southern Asia to be the Secretary of the Audio-Visual Aids Committee of the N.C.C.

We are considering "aids" which we may divide into two classes: (1) equipment and (2) materials. A gramophone is "equipment" while a record is "material". Moreover we plead for a broad concept in the use of the term "Audio-Visual Aids" and realize that we are dealing with a wide variety of items. There have been several attempts to classify audio-visual aids but in this chapter we shall follow one that is direct and simple—the alphabetical. What are Audio-Visual Aids?

AUDIO-VISUAL AIDS

1. Blackboard.
2. Bulletin Board.
3. Charts: table, stream and tree, and organization.
4. Dramatics: pantomine, pageant, puppet show, shadow play.
5. Flannelgraph.
6. Flat pictures: photographs, prints, post cards, illustrations in books.
7. Graphs: pictorial, statistics, diagrams.
8. Maps: flat, relief, electric, globes.
9. Models: objects, museum pieces, specimens, diorama.
10. Motion pictures: 16 mm, 35 mm—silent and sound.
11. Pamphlets.
12. Radio.
13. Sand Table.
14. Sound, recordings, amplification: dictaphone, public-address, inter-communicating systems, tower chimes, recorders.
15. Still Pictures Projected: opaque projector.
16. Slides and Filmstrip Projectors.
17. Trips: journeys, tours, visits, excursions, Field Trip.

TYPES OF AIDS

Let us consider each of these in some detail.

1. *The Blackboard.* The blackboard is visual equipment used for: (*a*) group planning, (*b*) drawing space to illustrate the discussion, (*c*) daily class work, (*d*) tests and (*e*) a means of presenting an idea to a group all at once. Such demonstrations save time and effort. The blackboard and the bulletin board are means of displaying other visual aids.

It is convenient, favourably located, easy to change the copy, always available and economical. What Sunday School teacher would attempt Palestinian history without this aid! Three types of blackboards are available: (1) the portable blackboard which rests on an easel or table; (2) the wall blackboard which is permanently built into the wall; and (3) slated cloth blackboards which can be rolled up and down like a window shade. The portable blackboard plays an important role in District work while in any institution the permanent fixture is to be desired. Not only should workers be provided with blackboards and chalk but they should be encouraged to use them. A worker need not be an artist to make good use of this aid. Through careful planning of the word-outline or illustration to be used the blackboard

can be a valuable aid. When we see the "blackboard" effects of the popular cartoon movies new possibilities present themselves. If our village pastors could be encouraged to put sermon, Bible Study and message outlines in simple form before their congregations there would be a new grasp of subject-matter and an increased retention of memory.

2. *Bulletin Board.* This is a frame with mounting surface to display such diverse items as: personal news, announcements, cartoons, diagrams, maps, clippings, graphs, pictures, post cards, subject outlines and notices. A glass-enclosed bulletin board may be attractive but simple home-made ones are just as useful. Make a bulletin board of soft wood, gunny bagging, heavy cardboard, plywood or masonite wood. The bulletin board may be attached to the wall by means of a small frame, hooks-and-eyes and wire. If the bulletin board is the gathering place for a conglomeration of material it will defeat its purpose. The materials should be collected with care, classified and arranged in an attractive manner. Your church bulletin board could be a thing of beauty with information concerning the church in India, the National Christian Council, stewardship, evangelism and international affairs.

3. *Charts.* Probably among the first visual aids used were the wall pictures in the Cro-Magnon caves. Charts, graphs and diagrams are still as effective as in that distant day. The "Flow Chart" will be useful in teaching the structure of church organization. Start with the bishop and go down the line, or start with the General Assembly and go down to the local synod.

4. *Dramatics.* Pantomine, pageant, puppet show, shadow-play, etc., will not be treated in this *Handbook*, although dramatization is a significant type of audio-visual instruction, because the Editor desires to treat topics with less voluminous literature.

5. *Flannelgraph.* See chapter 9 "The Flannelgraph".

6. *Flat Pictures.* Flat Pictures, including photographs, prints, post cards and reproductions of masterpieces have been widely used as preparation for worship, as the centre of interest in a service of worship, to introduce new subject-matter, to motivate and to review. The use of printed pictures is so common that scarcely a church in India exists in which there is not some use. But in all too many instances the use of pictures is haphazard. A discussion of the use of pictures is found in the chapter—"What to Look For in A Picture". The advantages of the flat pictures have been summarized by Miss Hazel Lewis who said:

"There are certain advantages which the flat picture has,—and by this is meant either a framed picture hanging on the wall or one which is in the file and available at any time. Such a picture may be possessed by those who see it in a way in which a projected picture is not. It becomes "our picture" to a group of children. It has a continuing message and takes to itself many associations of music, song, poetry, Biblical passage. A network of association

thus built up enriches everything which is a part of it, although it may be very difficult of analysis. It is somewhat the difference between the victrola record and music over the radio. The one who possesses the record may have the music whenever it fits his mood, or not."[1]

Let it be added that just pictures are not enough. Care must be taken to mount, label, file, classify and eliminate unsatisfying subjects as new discoveries are made.

7. *Graphs*. In this area we include pictoral statistics, diagram, etc. Graphs are the language of statisticians and are effective tools for comparisons and contrasts. The growth of Christianity and Islam in specific areas can be visualized by graphs. The total membership of your local church or of the denomination, of the Christian Community in India and of the World Council of Churches can be showed by the graph. Bar graphs are used to visualize, for example, food values. The "pie" graph will help you show where each anna in the local church rupee goes. Visual effects are possible by coloring each section of the "pie" a different colour.

8. *Maps*. Of all the visual aids maps are probably enjoying the most extensive use (in conjunction with globes) constituting as they do a basic device for understanding our expanding world. By maps children are taught the parts of the world where the church has spread, the geography of the Holy Land, the travels of St. Paul, the location, and extent of their denomination's work.

9. *Models, Objects and Specimens*. Some people believing "Audio-Visual Aids" was synonymous with "16mm Movies" were surprised to find in bulletin No. 9 of 1945 issued by the United State Office of Education entitled "Use of Training Aids in Armed Forces" that Sand Tables, objects, "Mock-Ups", and specimens were extensively used to train our combat forces.

The church can make for wider use of these aids. A heightened sense of reality may be given by bringing to the pupil an object relating to the subject. Bible life is made more real through seeing and handling a scroll. Develop a model church for India of construction paper, glue and wood. Create a Church Museum. Locate Communion ware used in former days, old Bibles, objects from different parts of India, etc.

10. *Motion Pictures*. Silent and Sound. The motion pictures film coming in 35 mm, 16 mm and 8 mm sizes with the projector to create the illusion of motion is one of the marvels of the present age. They have had and will continue to have a tremendous hold upon the public. Mainly associated with entertainment, more recently used in education, the church is today awakening to their power. Films can be used to touch hearts, bring men to Christ and spread His teachings.

There are two types suited to church use—16mm sound and 16mm silent. The 35 mm film is the commercial size while 8 mm is the family size. The

[1] Lewis, Hazel A., The International Journal of Religious Education, May 1942, p. 8.

sound film has a "sound track" printed on one side of the film in place of the sprocket holes which are found in the silent film. Hence sound film cannot be used in a silent projector.

Throughout this Handbook one will be increasingly aware of the power of the motion picture and the wide use of the 16 mm film. The National Christian Council of India and Pakistan in the two film libraries, Fatehgarh, U.P., and Argoyavaram, have over 300,000 feet of film on all subjects.

Films may be classified as to content with feature, shorts and news reels constituting entertainment films; while inspirational, informational, documentary, skill and sponsored films being teaching films.

11. *Pamphlets.* The pamphlets as an aid to learning and as an aid in evangelism has had a long history. Let us not forget the role of the tract in all reform movements. Pamphlets provide up-to-the-minute topics not yet incorporated in books or movies. They are pilot-projects for new ideas. Pamphlets are cheap and abundant. They are also valuable for discussion groups providing a suitable introduction to almost any topic. Plan to collect, file and classify pamphlets, brouchers, mineographed reprints in your church or school.

12. *Radio.* In the days of radio's infancy a famous university president was asked if his institution would care to present a series of educational programmes. He refused saying: "Radio is just another gadget. It will be forgotten in a few years". As strangely familiar is the bishop in India who has no budget for "these toys". The "gadget" called radio is with us—growing strong. The average American home has the radio "on" 5.2 hours every day of the week. In 1944 realistic business men in America paid $ 285,000,000 for time on the air.

Mrs. L. B. Carruthers will discuss Religious Radio in Chapter 13. While the present policy of All-India Radio excludes religious programmes from the air in the interests of a secular state there are many indirect ways in which the Christian Community can influence radio in India and use it to greater advantage in church and school.

13. *Sand Table.* Agricultural, geographical, historical, religious and cultural projects may be vividly illustrated by the use of the simple sand table. A sand table or tray should be built of light lumber and tarred before sand is put in to prevent warping. The size of the box will be determined by the specific needs. For small classes 3 by 4 feet with 8 inches of sand will suffice. For a large classroom a 5 by 10 feet sand table will be more useful.

Accessories are water, clay or sand that can be moulded when wet; tools such as shovel or large spoons; sprinkling can; water bucket; tin for mixing sand or clay and water; string; chalk; assorted sizes of wood blocks to use in representing and constructing buildings; and models of carts, cars, trains, animals, boats, etc. Buildings can be constructed out of cardboard. Open fields can be made by roughing the sand and sprinkling sawdust. A piece of glass will represent water.

Let the Christmas story take on new meaning this year through the Nativity scene your Sunday School constructs out of the sand box and associated materials.

14. *Sound Recording and Amplification.* See Chapter 11 "Sound, Recordings and Amplification".

15. *Still Pictures Projected.* This is possible with an opaque projector, a machine which projects on a screen, by reflecting mirrors, any picture, diagram, or other flat object or near flat object which can be placed in the machine. The pictures are reproduced in natural colour although greatly enlarged. The Spencer combination Delineascope Model VA will bring to the classroom the latest material in books, magazines, and pamphlets in addition to specially prepared units such as cloth samples, coin collection, mounted insects, flowers, minerals, etc.

In looking for an opaque projector request at least: (1) 500 watt lamp for illumination; (2) Light enough to be portable; (3) Minimum 6″ x 6″ picture size to be accommodated; and (4) Provision for replacement of reflectors.

16. *Slides and Filmstrip Projectors.* One of the limitations of the motion picture is that it cannot be halted conveniently for questions and explanations until the end. Filmstrips are valuable supplements to moving pictures and important aids in their own right. The filmstrip is a new application of an old principle. Twenty to one-hundred pictures are printed in sequence on a strip of non-inflammable 35 millimetre film. The pictures are projected on a screen from a light-weight portable projector. See Chapter 10 "The 35 mm Projector, Slides and Filmstrips"

17. *Trips, Journeys, Tours, and Visits or the Field Trip.* The term "field trip" began to be used by educators in the United States for lack of a better term to describe a class activity in which a group visits a place or object so that the desired information can be gained through personal observation. When the teacher takes her class to the Government Gardens to study nature she is using the "field trip". One of the most effective users of the "field trip" in India is Miss Edna Bradley of Moradabad. She planned a "Village Life Field Trip" for the third and fourth standards. The purpose was: (1) to learn to appreciate the important role of the village in India; (2) to understand the interdependence of village and urban life; (3) to learn to understand words used by urban residents with little meaning, *i.e.* Village Chaukidar, Patwari, Sir-Panch, had, bigha, etc., and (4) to put life into teaching.

The value of the field trip is determined by the amount of preparation which goes into it. In this case the staff made a visit to the village and conditioned them for the visitation of the pupils. They discussed the questions that might be asked. The Sir-Panch was delighted to see the children and called a panchayat meeting of seven village elders. The Patwari showed the village maps. The village Chaukidar explained the system of recording births, marriages, court cases, and crimes. A "bigha" of land was measured and

fields were visited. A visit to the village school provided material for a week's discussion. The outcomes of such a field trip could be listed as:

(*a*) Appreciation of Courtesy shown by Village Leaders;
(*b*) Appreciation of the work of farmer and Village workers;
(*c*) The Village has rules of health and District Health Department;
(*d*) Children appreciated the Village children, their work and play; and
(*e*) Integration: Most worth while lessons in Reading, Social Studies, Arithmetic, Writing, Compositions and Letters.

THESE ARE AUDIO-VISUAL AIDS.

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In addition to the material above, the following newsletters and magazines will offer many helpful suggestions to every visual supervisor:

1. Visual Education Newsletter. International Council of Religious Education (issued 5 times a year to members of the Visual Education Fellowship).

2. International Journal of Religious Education. Published by the International Council of Religious Education, 203 N. Wabash Avenue, Chicago. $ 1.50 a year.

3. Educational Screen. Published monthly except July and August by Educational Screen, Inc. 64 E. Lake St., Chicago. $ 3 a year.

4. Church Screen. Published quarterly by Visual Text Publications, 812 N. Dearborn St., Chicago. $ 1 a year.

CHAPTER II

WHY USE AUDIO-VISUAL AIDS?

Ralph G. Korteling[1]

ONE obvious answer to the question, "Why use Audio-Visual Aids?" is that they have proven their value in so many occupations and in so many ways. Audio-Visual Aids can be used to teach music appreciation, religious values, cultural patterns of all sorts and races of people. They are used extensively in industry, commerce, advertizing, formal education and mass communications. There is reason to affirm that through the use of sensory materials people learn up to 35 per cent more in a given time and remember up to 55 per cent longer what they have learned. This should be reason enough for those concerned with teaching and influencing public opinion to give serious thought to audio-visual aids.

TO DELAY IS UNWORTHY

This handbook, however, is drawn up with a particular group of workers in mind. It is produced by the Audio-Visual Aids Committee of the National Christian Council of India and Pakistan for the use of teachers and preachers, doctors and nurses, rural uplift and public health workers, Bible-women, evangelists, colporteurs,—in fact all those associated with the Christian Church and its varied services in this part of the world. This body of workers while considerable in number yet small in proportion to the population has undertaken humanitarian and Christian tasks of staggering proportions. If by any means of modern science and modern technology we can accomplish our work more speedily and more effectively, we want to know about it and use it. Already we have waited too long to employ the latest audio-visual aids in our work. To delay further is unworthy of the enterprise we represent.

BOTH NEW AND OLD

Audio-visual aids are not new. In fact they may be considered both new and old. They are as old as the cave drawings of pre-history man and as new as cinematography and television. Aaron's breastplate described in Exodus chapter 28 was a beautiful piece of visual symbolism. The remarkable carvings on ancient temples and the decorative stained glass windows of mediaeval cathedrals are examples of teaching with visual aids. But only in the present century due to the advance made in the knowledge of optics and the development of precision instruments, together with the marvelous discoveries made in the reproduction of sound communications has audio-visual aids taken on

[1] The Rev. Ralph G. Korteling, M.A., B.D., Punganur, Chittoor District, South India is loaned by the American Arcot Mission, the Reformed Church in America, and the Cuddapah Diocese, C.S.I., as Field Director of the A-V A Committee of the National Christian Council.

new and revolutionary phases. Mission workers of bygone days have made good use of the older materials, picture rolls and magic lantern projection. It is for us to profit by newer materials and better utilization.

THE LEARNING PROCESS

Keeping in mind the question at the head of this chapter consider briefly how we learn anything at all. The process which is of course a living whole can for purposes of analysis be conveniently divided into four steps.

1. *Sensory contact with life experiences*: All of our acquired knowledge is rooted in concrete information that comes to us over the five highways of the five senses,—sight, hearing, touch, smell and taste. By seeing, hearing, touching, smelling and tasting as well as by kinesthetic sensations the child learns about mother, father, home, food, flowers, security and the whole world in which he moves and lives. Gradually the child builds up a vocabulary of hundreds of words that he never forgets. This education through the sensory tracts is fundamental to all the learning that follows. In school he gradually learns a new language of symbols. These symbols are arbitrary and have to be mastered as the inheritance of the race. These symbols in the form of signs and words are a system of shorthand that makes modern life possible. With this shorthand well mastered great strides in knowledge and discovery can be made but the meaning of these words and numbers has to be rooted in reality. Words are not the thing itself but the signs that "stand for" the living experience. The meaning of symbols has always to be grounded in experience.

2. *Concept building*: The child soon learns that oranges, papayas, mangoes are good to eat. These he puts into the basket in his mind called the fruit basket. In other words he has built up the concept of "fruit". This classification of information goes on and on and by it advance in intelligence can be measured. His pool of experience is growing and he must catalogue and index it. He uses concepts for this purpose,—trees, stones, minerals, flowers, disease, buildings, etc., etc.

3. *Identification*: There is a significant text in the story of creation as recorded in Genesis 2:19 which reads, "So from the ground God shaped every wild beast and every bird of the air, bringing them to the man to see what he would call them; whatever the man called any living creature, that was its name." This process of tying names to things has gone on ever since and has grown into enormous volumes of dictionaries and encyclopaedias. This is no small part of the learning process, to identify names with the things they represent.

4. *Application*: But no learning is satisfactory or complete until the knowledge gained is used. The child that learns that the round coloured ball is an orange must learn to use that object for his health and well being. If anywhere on the ladder of four steps there is a break the chances are that the

matter learned for a passing moment will not be remembered. It will not be remembered because it is not significant to life.

The reason for outlining this process of how we learn is to underscore with a red pencil *the importance of clear, concrete sensory impressions of words and their meanings.* The child that said "the equator is the menagerie lion running round the earth" added much to the amusement of people but little to his own knowledge. The same holds true of another child who informed his teacher that the American Revolution wrote nasty letters to the French Revolution because he had heard that the American Revolution corresponded roughly with the French Revolution.

HOW TO GET ATTENTION?

Still another reason for using audio-visual aids is because they furnish a natural motification for learning. "Spare the rod and spoil the child" is still a cherished precept in far too many elementary schools in India. From the point of view of the teacher a few "cuts" administered to an indolent pupil may seem as to be a very positive way of getting the child educated, but from the point of view of the child it is education by compulsion, it is purely negative. Punishment as a motive for gaining application and attention to studies degrades the teacher as well as the pupil. It is no longer used in reputable educational institutions. It leads to the dissipation of the learner's physical and mental energies.

A more positive motivation in our schools and colleges is the encouragement of marks and rewards. Rewards are given to the best athletes and "grades" are given to the pupils. This is almost a universal practice but even this system is losing the confidence of educators. They see that the student is often studying not for the sake of the acquisition of knowledge but the passing of an examination. At least the attention of the pupil is divided by the goal of securing a passing grade.

A MORE EXCELLENT WAY

Modern educational psychology seeks to build on an intrinsic motivation through the proper cultivation of the vital inherent interests of the learner. We all have interests, children as well as adults, and these can be utilized in the enrichment of life. What part do audio-visual aids play in the system of gaining attention and arousing interest? Much can be said for the use of these intriguing sensory materials.

WHAT YOU MAY EXPECT FROM THE USE OF A.V.A.?

1. *They get attention* almost spontaneously. The appeal is to the eye and the ear. There is novelty about these tools. There is action that creates curiosity which is the vestibule leading to mental action. This is true of demonstrations, dramatizations, pictures, field trips, radio programmes, etc. When people sit in the dark and see a light flicker across a life size screen and when the actors are presented in natural colour and speak in natural conversation the effect is almost hypnotic. The audience enters vicariously into

the acting to such an extent that at times they weep and at other times they burst out in applauses. When audio-visual aids are used correctly the teacher can mark the class present mentally as well as physically.

2. *Audio-Visual aids are easily understood* because they are concrete. Words and verbal descriptions are often vague and unsatisfactory. Let a teacher bring a dog or a cat or a rabbit into the class-room and the lesson on the animal in question is immediately heightened and enlivened. The laboratory method is always concrete.

3. *Many audio-visual aids give the pupil or the adult a chance to manipulate the object under study.* This is true of a model in the class group or a steel plough among a group of farmers. This is part of the interest created by the school garden or poultry project. How thrilled are the members of a village group after the first shyness has worn away to speak or sing over a loud speaker through a microphone. A modern stereoscope fascinates the individuals that look through it and manipulate it.

4. In the minds of young and old are unanswered questions that these *sensory aids supply the answer.* Moving pictures realistically show people how to swim or how to play tennis. "How do the people in other lands live?" is a natural question that pictures can help answer.

5. But naturally no single audio—or visual aid can tell all there is to know about any object. A good film will tell much and *leave the viewer anxious to learn more.* Thus audio-visual aids are excellent means to create a motivation for new and larger learning.

SUMMARY

Audio-visual aids have been tested under many circumstances over many years and have been accepted as valuable tools in teaching and mass communication.

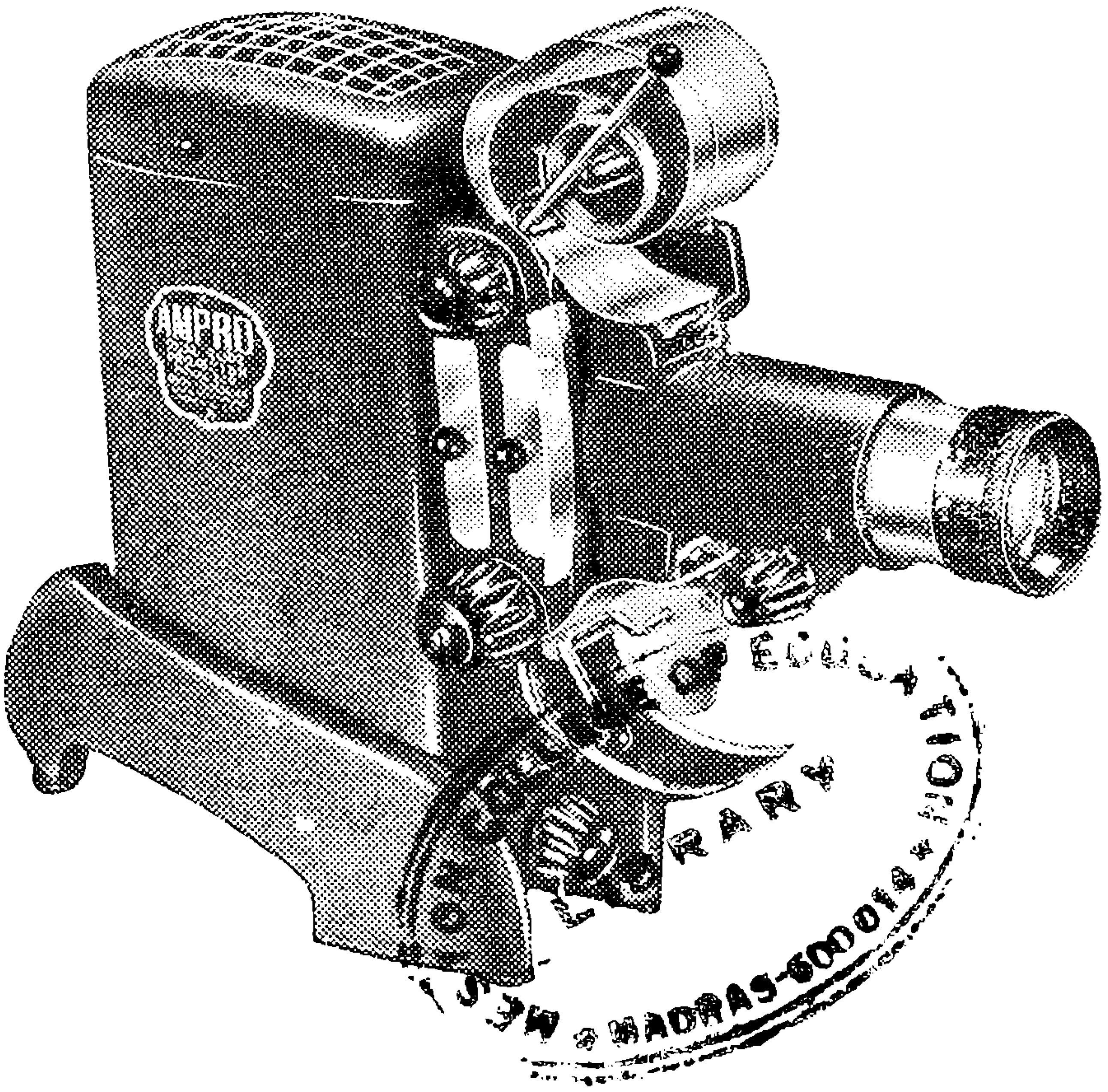
Audio-visual aids can help us do our appointed tasks more effectively and in shorter time.

Audio-visual aids are both old and new. We must learn the new techniques.

Audio-visual aids supply an adequate sensory experience that is basic to sound knowledge and enriched living.

Audio-visual aids are naturally interesting and solve the vexing problem of motivating learning.

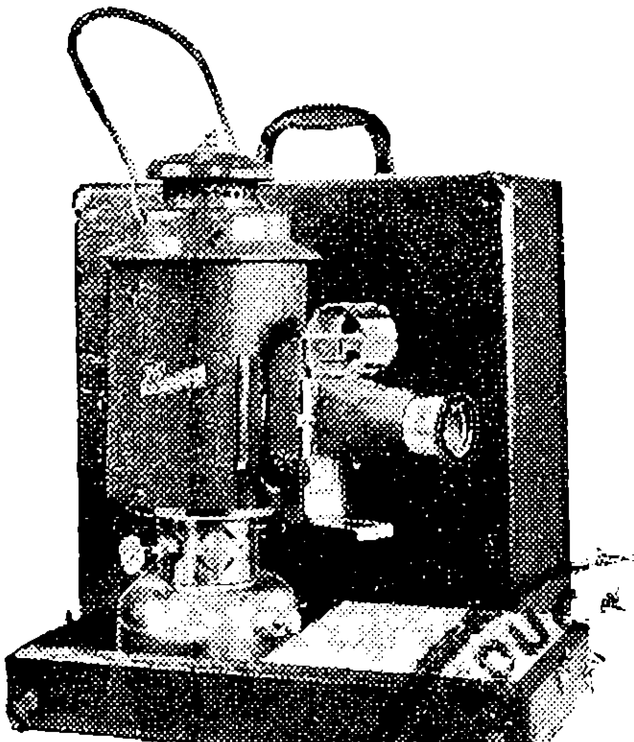
Note, however, that only when audio-visual aids are properly used do they produce these desired effects. This is the subject of our next chapter.



MADRAS-600014

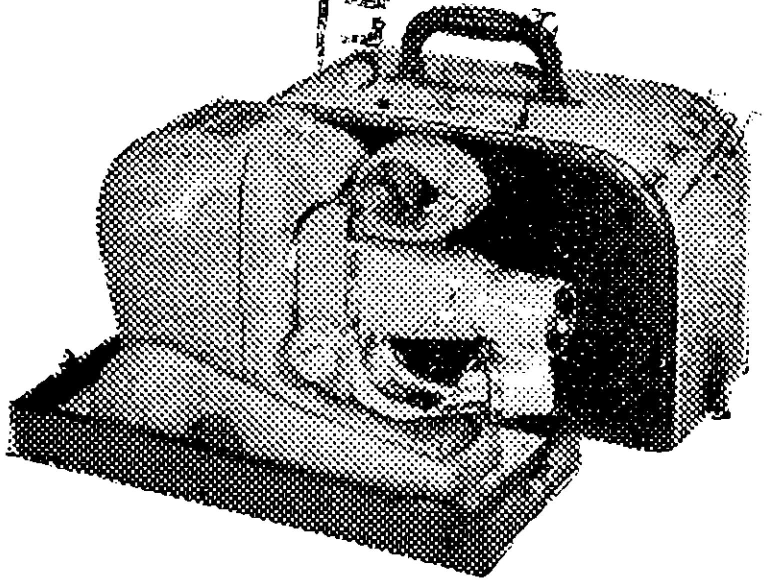
Dual Purpose Projector for 2 × 2 slides and 35 mm strip film.

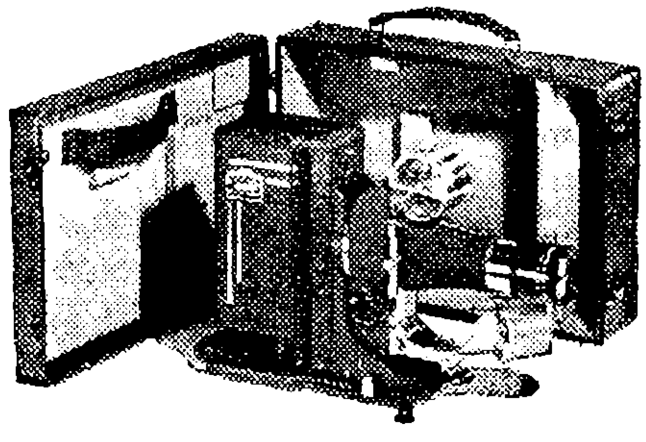
Courtesy: Ampro Corporations, Chicago, Ill.



The Instructor 300, S.V.E. International and the Model AAA 35 mm projectors.

Courtesy: Society for Visual Education, Inc., Chicago, Ill.





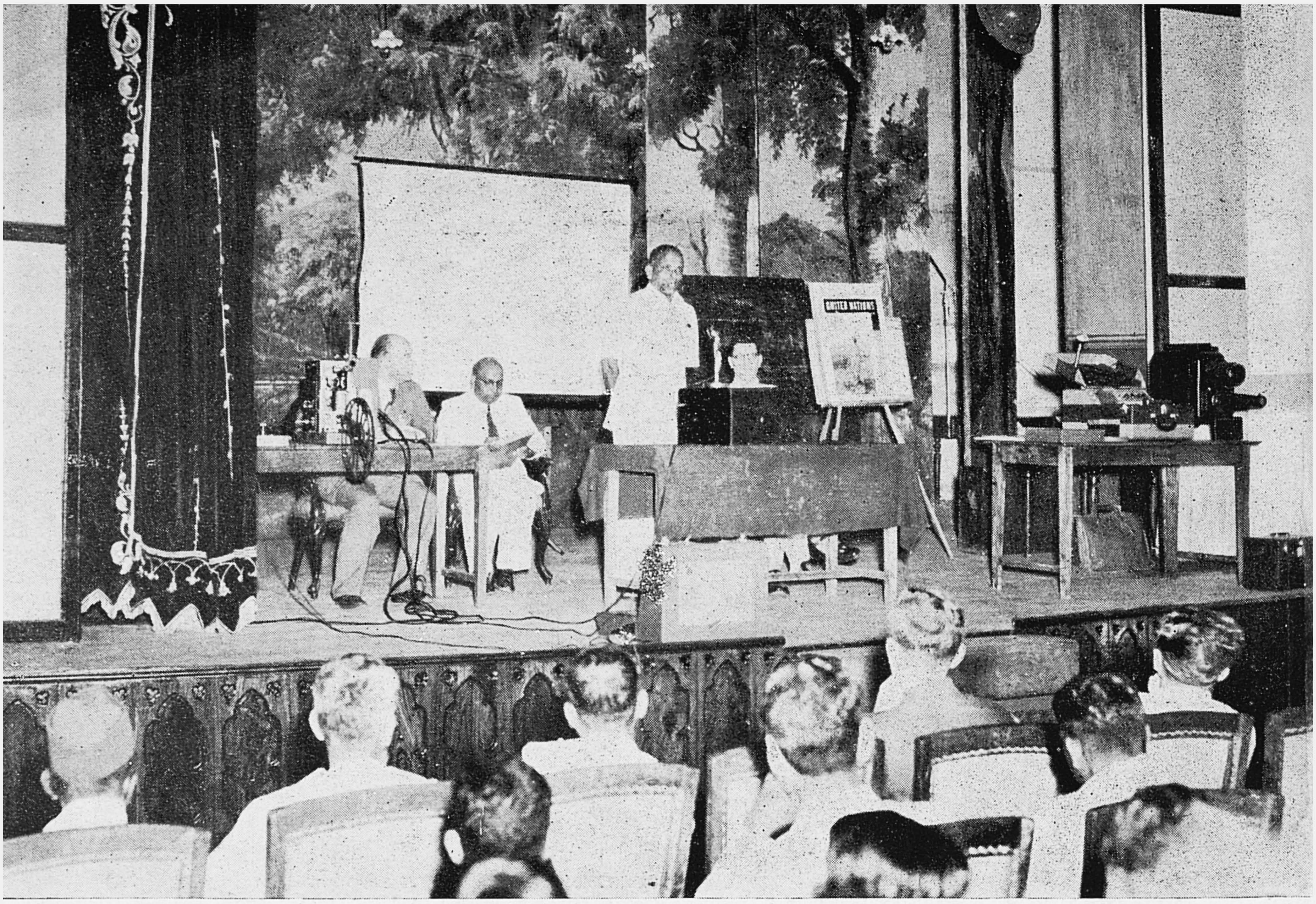
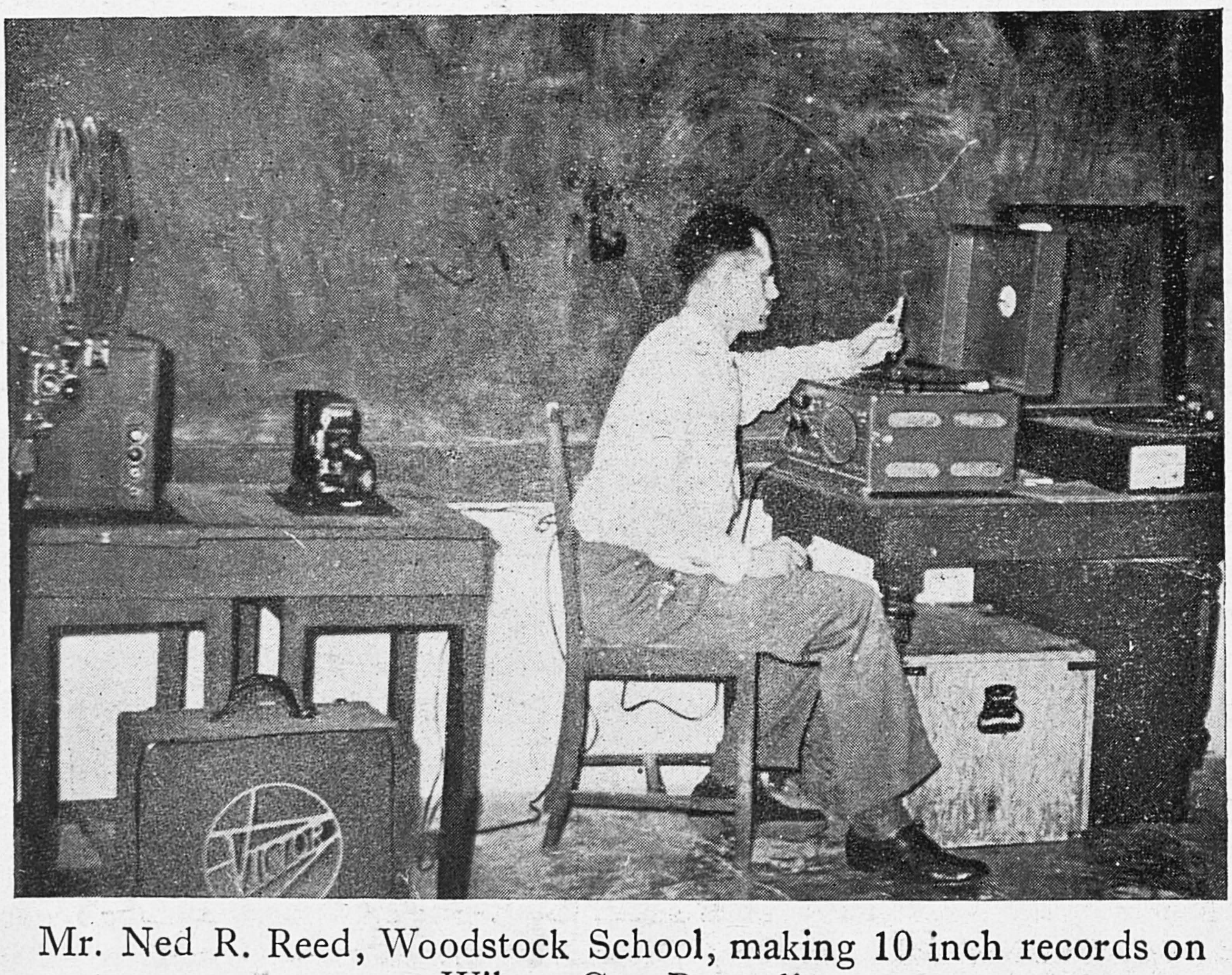


Photo by Heckman

An Audio Visual Institute at Trivandrum, November 11–13, 1949. 155 registered as delegates while 2,500 attended the public meetings



Mr. Ned R. Reed, Woodstock School, making 10 inch records on a Wilcox-Gay Recordio

CHAPTER III

HOW USE AUDIO-VISUAL AIDS?

Ralph G. Korteling[1]

HOW do *you* use audio-visual aids? Does the following story sound reminiscent of procedures in *your* experience?

A group of church members, anxious to do some evangelistic work, come to the pastor or the person in charge of materials with the request, "We would like to go somewhere on evangelistic work tonight. Can you come along and help us with the projector?"

"Sure", says the projectionist. "What time and where shall we go?" "Six O'Clock at the church, and we will think of a good place to go." The hour arrives and the group gathers at the church. "We have decided to go to Kothapalle village", says the leader. Some of the group pile into the jeep which carries the equipment and some of the rest start walking.

When the car arrives at the village the children all run with shouts of glee to greet the strangers. Before the rest of the helpers arrive a wall of a building is chosen as the best that can be done by way of a screen and the equipment is set up. Slowly a few women appear carrying babies and later a few old men join the party. When a fair sized group has assembled the generator is started and the "show" begins. As a bit of enticement and a sure-fire attraction the projectionist begins with a Micky Mouse cartoon. Everybody laughs and it is good fun till a farmer wants to get through the crowd that has occupied the road between the projector and the building wall used as a screen. As the farmer and his bullocks drive through the centre of the audience there is shouting from all sides but soon they settle down again to see what is coming next.

"Now", says the projectionist to his helpers, "I have a film that I have not seen, but I think it is about fish. It is called 'Treasure from the Sea'." It starts out like a pirate story and the fish do not appear. The catechist who is explaining the picture soon finds himself figuratively in deep water, for the subject of the film turns out to be about magnesium. The colour is good and the people are amused, so why worry?

It is time now to start the religious picture. The set selected by the projectionist is: "Christ, the Good Shepherd". He turns to one in the band of helpers, "John, will you start talking to the slides and after about six pictures, Manikam, will you carry on?" All goes well till they come to the picture of Jesus protecting the flock from the wild beast. John is in doubt about the indefinite blur in the foreground. The audience says that they don't know what it is. In the group of helpers it is suggested that it is a dog. The projectionist assures them it is a wolf. And so the story goes on.

[1] The Rev. Ralph G. Korteling, M.A., B.D., Punganur, Chittoor District, South India is loaned by the American Arcot Mission, the Reformed Church in America and the Cuddapah Diocese. C.S.I., as Field Director of the A. V. A. Committee of the National Christian Council.

They come to the end of the programme and there is a demand for another Micky Mouse. "Next time, next time", is the assurance from the projectionist. The evangelistic band returns home.

IT TAKES TIME

I know that this is no exaggeration of the way audio-visual material is used at times. It is so much an abuse of what should be done, and could be done, that one wishes no aids had been used at all. The subject of the proper utilization of teaching aids calls for serious thought and attention. One may say that it is the weakest link in our programme of mass communication. In this field of education and promotion competition is great and the standards are rising even in the villages. Science, skill and devotion are all needed to effectively reach the people with our message.

A COMPELLING PURPOSE

Let me preface this short chapter on the utilization of audio-visual aids, with an *emphasis on purpose*. Purpose determines procedures. We would not think of running a race without a goal. We should not think of holding meetings and speaking to people without a definite purpose. Our purpose may be entertainment; it may be education; it may be worship; it may be evangelism; or a host of other objectives. Until we know what we are after how can we proceed to get it? I know that in general, people in schools and churches have a vague purpose in the back of their minds. That is not good enough. It must be a specific purpose, definite and in the forefront of all planning. The Christian religion has many messages, many lessons, and many stories to tell the people. Which of these are you going to use on any one occasion? The implications of this fundamental concept will become clear, I hope, as we consider the principles involved.

UTILIZATION

What follows is nothing particularly new, for the principles involved are those of good educational pedagogy. The procedures have been tried and found valid. They need not be slavishly followed but can be adopted to meet various circumstances. They are steps in the attainment of efficiency and good results. While many know these principles, blessed are those who observe them in practice.

The four main divisions of good utilization are:

Preparation

Presentation

Application

Follow up

Preparation is logically first. It grows out of a careful formulation of purpose. Supposing our object is to teach the truth,—"God is love". That purpose could be approached from many angles, from many declarations of Scripture. The type of audience and the age level of its members must be reckoned. The religious back-ground of the group must be evaluated as Christ did when he spoke with Nicodemus. After giving due thought to the factors involved we may decide to teach the lesson of God's love as the Master Himself did, with the use of the parable of the Prodigal Son. In the use of that parable there is again a wide choice of aids we can draw upon,— beautiful flat pictures, flannelgraph, stereoscope, projected still pictures, cinema, recordings, etc. Which aids shall we use?

SELECTION OF MATERIAL

This brings to the fore the first subheading under preparation, namely, selection of material:

Preparation———

Select Material

Place Order

Preview

Plan Programme

Each audio-visual aid has its advantages and limitations. The function of each of the many tools at our disposal must be learned and used. For instance, a coloured flat picture is better for a small group, while a projected picture can be seen by a large multitude of people depending upon the size projected. Flannelgraph may be easier in day time, while cinema would be better at night time. Still pictures hold an advantage because they do not move and can be explained for as long a time as necessary. Cinema pictures are excellent for showing processes and moving parts. Gramaphone records may be used to improve singing in our congregations. Recordings of outstanding leaders have a popular appeal. Knowing our purpose and our audience, and being acquainted with the proper function of our aids, we must make a selection of material that will best serve our purpose. In the supposed case of presenting the lesson,—"God is love" we may determine that the best aid to use will be the filmstrip produced by the National Christian Council Committee on AVA in collaboration with the staff and students of Leonard Theological Seminary, Jubbulpore, entitled,—"The Prodigal Son" It is done in colour and in an Indian setting.

The next step is either to buy the filmstrip for a few rupees or rent it from one of the National Christian Council Libraries. Allow plenty of time

for filling orders and for transportation since delays in deliveries do creep in. Also be sure to give a second choice of film in case what you wish is being used elsewhere at the time you plan to use it. When it comes to the simpler and less expensive audio-visual aids, each station can easily build up its own library of materials. These will then be ready for immediate use when wanted.

In the story that introduced this chapter you recall that neither the projectionist nor any of the helpers had previously seen the film,—"Treasure of the Sea" What they thought to be fish turned out to be magnesium. A fundamental and crucial principle had been violated. The film had not been previewed. It is easy to understand that you cannot talk about what you have not seen. Disregard of this essential procedure may lead to embarrassing results. There may be in the film scenes that you would not like to have that particular audience see. This is a must of good programming, —always preview your material and decide what you are going to call attention to and what you are going to emphasize.

But preparation is not complete when you have picked out an aid or two. There is the whole programme from beginning to end to consider. How are you going to begin? How will you proceed logically and emotionally to reach your goal in the meeting? What ending will leave the best impression on the class or gathering? The development of the subject calls for careful planning. Music is a very important factor in programmes where it can be used. Are prayers out of place in the particular instance you have in mind? Who will be assigned to each part of the programme? Leave not these arrangements to chance, for chance is a lame brother to lean upon. Let rather the Boy Scout motto be your guide, "Be Prepared".

PRESENTATION

The day dawns, the hour arrives, preparations have been made, what next? Naturally the best presentation possible. Here are some of the factors to be watched:

Presentation————

- Introduction
- Questions
- See to darkening of the room
- Ventilation
- Seating
- Acoustics
- Electric current
- Rescreening if necessary

These also are things that you cannot leave to the last minute. If you do you will be sorry. When I mention the necessity of introduction I do not mean the much belabored and little appreciated "opening remarks by the chairman". No, I mean the psychological vestibule that leads directly to the purpose of the programme or the intent of the picture. I mean the few choice words that will set all ears atune and all eyes waiting to see. Many a programme is marred or made by the kind of introductor sentences. Sometimes readiness and altertness can best be secured by asking a few questions that the audience is interested in, and to which they wish to learn the answers. Curiosity is the threshold of learning. Use it to stimulate active attention. The audience is most likely keen to see what is coming. Don't bore them with long introductions. Let your words be few and to the point.

REMEMBER THE PEOPLE

With the use of audio-visual aids it becomes especially important to give attention to the physical comforts of your class or audience. For clear pictures darkness is required. When projecting during the day time see that light is eliminated as far as possible. At night time let the moon shine on the projector rather than the screen. The best seats are always close to the axis of projection. Encourage the people to come to the centre of the space you are using. Village people invariably want to sit on the sides of the room or gathering. Therefore do not use a beaded screen with its narrow angle or refraction. Use a good flat white surface. A public address system of some sort is most valuable. In the country a loud speaker helps one compete successfully with the dogs and cats and crying children. More than that it assures better order in the audience. When a loud speaker is used the people will not be tempted to speak, but if the explanation does not carry to every corner distinctly and clearly, the people will be almost sure to make their own comments. Furthermore, those in some other part of the village, who do not see the picture, will hear the sound and be attracted to come and join the group. A microphone will save the human voice and reach out far beyond the capacity of the vocal cords.

Especially in class room work where a film is shown to introduce a unit of study, and discussion follows, often it is worth while at the proper stage to say, "Would you like to see the picture again and notice more carefully the points you have raised?" The children appreciate this opportunity and get much more out of the second showing than they did from the first showing. This technique can be used in small controlled groups out of doors as well, but it must follow a demand of interest which has been aroused.

SO WHAT?

No teaching is complete without application to life. No preaching attains its end that does not change the souls of men. After the presentation of a lesson or a message comes its application. Application may be of various kinds. Here are a few:

Application———
Practice
Testing
True-False checklists
Discussion

If we have seen a set of pictures on "How to start a garden", and have thus acquired a knowledge of procedure, we should carry through the purpose of the film by planting a few seeds, no matter how few, and taking proper care of the plants as they grow. The "know-how" pictures and "know-how" films are many and very good for teaching crafts and skills. Their presentation is a step to actual practice of acquiring skill.

Other subjects lead more naturally to testing. After seeing one of the series of films on "Two-Thousand Years ago", the teacher might well ask test questions on what the children have seen in the film. These may be either oral or written. This helps to establish important facts in the mind while the impression is still fresh. Many factories use true and false checklists after showing teaching films to their workers. The so called social problem films lead quite naturally to a discussion of the application of changes in society. All these are ways to apply what has been seen and heard during the presentation with audio-visual aids. Can this be applied to religious teaching and promotional work as well? Of course, why not? The Bible lesson can very effectively and dramatically be presented by these materials and later on evaluated by testing the pupils. In the town and in the village a presentation can be discussed afterward. Individuals can be approached for comments and reactions to the message of the programme. A picture on stewardship can be followed by initiation of definite steps to enhance the systematic giving of a congregation. The crux of the matter is not to let the teaching hang dangling in mid air because we do not press the pedagogical principle of application. Every stimulus must lead to a proper reaction. Every effort we make should bear fruit in course of time.

AGAIN, AGAIN AND AGAIN

Is this then the conclusion of the matter? No. Far from it. Think for a moment of the three important agencies that are used during these days to mould public opinion. They are the press, the radio and the cinema. What makes these means of mass communication so powerful? It is the principle of frequent repetition. If a person reads a daily paper once a month, listens to a radio talk once in a blue moon, sees a cinema twice a year, we need not fear that they will influence his life to any great extent. Quite obviously he has not exposed himself to become infected with the virus of their thoughts.

It is because the people read the paper every day that the daily press is so powerful. It is because they keep the radio turned on from morning till night that the radio influences their lives. It is because they attend the cinema regularly that the cinema has such a strong hold upon their life. The principles of repetition must be brought into play to expect results. Let us take this lesson to heart when we use these means of mass education for adults and for children. Programmes must be repeated with interesting variations so that the same people see again and again the story we wish to have them learn. Then in course of time we may naturally expect some result from our carefully planned efforts. Thus we must realize that beyond the individual programme and its immediate application is the long-term follow-up. We seek for a change of mind, comprehension of knowledge, re-orientation of life—these are not produced by an occasional spasmodic effort. It calls for a regular and persistent application to the task we have set ourselves, or better still, to which we feel God is calling us.

FOLLOW-UP

There are various types of follow-up. Here are a few suggestions:

Follow-up———
- Reading
- Writing
- Dramatization
- Field trips
- Organization

For those who can read, a world of information and new ideas is possible. Nothing makes for clearer thinking than writing, putting ones thoughts on paper. School children might combine reading and writing to further deepen the impression made by a picture or some vidual aid. How the people of India love a drama! They will sit by the hour watching the touring drama company. They revel in putting on a drama themselves. This in turn becomes an audio-visual aid through which they carry on the lesson and the teaching. But because they participate in the acting they themselves learn far more than the audience. Can field trips be used outside of class and school references? Why not invite the village congregation to visit the town church? Why not village people attend a church session meeting as spectators? Why not organize a Christian jathra? Visits of one group to another group can be classified as a kind of field trip that holds large possibilities by way of developing the "fellowship of believers". After seeing a Boy Scout cinema it may not be difficult for the teachers of a school to organize a Boy Scout unit

in the school. After implanting the ideas of the Christian Church in the hearts and minds of an interested group it might be possible to have them unite and join the Christian fellowship. These are some of the means of follow-up that we must keep in the focus of our planning and programming.

Enough has been said to indicate the tremendous importance of careful planning and organizing. Let us remember that the materials we are here recommending are all *aids* to better education, to better evangelism. They are not the end of our aspirations. They are not the goal of our pursuits. They are the means to help us attain our purposes. Use them correctly and they will come to your aid. In this matter also, as in spiritual growth, "study to show yourself a workman that needs not to be ashamed".

CHAPTER IV

EQUIPMENT RECOMMENDATIONS AND SOURCES

NED R. REED[1]

CONTENTS

1. Helps—General.
2. Electricity—AC, DC, and Village.
3. Opaque Projectors.
4. Slide and Filmstrip Projectors.
5. Phonograph.
6. Pick-up Arm.
7. Needles.
8. Movie Projectors—Sound, Silent.
9. Lens Chart.
10. Microphones.
11. Public Address Systems.
12. Recording Machines.
13. Screens.
14. Transformers.
15. Inverters.
16. Projection Bulbs.
17. Sources.
18. Bibliography.

1. HELPS

MODEL numbers, sources, and prices are listed as current, approximately. Naturally other models, makes, prices, and sources may be more advisable if the same specifications are followed.

Radio needs listed below may be gotten from either Concord Radio Corp. or Allied Radio Corp. here listed, or other such companies. Referred to in lists simply as Concord, or Allied.

1. I personally prefer to order from Concord, as they are very prompt and courteous. They can supply any item listed below, whether cat. ‡'s given are Allied or Concord.

2. Addresses referred to: See No. 17—Sources.

3. In placing orders:

(*a*) Mission Boards should get 25% to 40% discounts on projectors and supplies. Materials supplied by Radio companies are usually net.

[1] Mr. Ned. R. Reed, B.Sc., General Secondary Certificate, of the Methodist Church in Southern Asia, is on furlough in the United States of America. He was Head of the Science Department and Audio-Visual Aids of Woodstock School, Landour, Mussoorie, U.P. He is interested in the production of indigenous material.

(*b*) U.S.A. money must accompany orders. Your Board may be able to help in this.

(*c*) Orders will not be shipped outside U.S.A. by the companies usually, except Concord.

(*d*) Have them shipped to your Mission Board Shipping office, or to friends experienced in forwarding to you.

4. Costs: To the U.S.A. prices add 35% duty (wide variation in actual practice) and transportation. The average total cost delivered in India is the U.S.A. cost plus 50%.

5. Reference: In equipment referred to by numbers, please refer to the appropriate section for full description. Items listed by numbers are:

(*a*) Microphones.
(*b*) Transformers.
(*c*) Inverters.
(*d*) Projection Bulbs.

6. Be sure to get needed Import Licenses—Inter-Mission Business Office knows the latest procedures.

Write: Executive Officer, Import Controller, New Delhi.
Stating:

1. Articles wanted (general catagories).
2. Value including landing costs. Be sure it includes enough as this is a limit, not the dutiable amount.
3. Source of dollars—whether permit for exchange is required *or* if they represent a gift of your Mission Board in the United States and hence no exchange is required.
4. Intended use of equipment—general—such as school, rural, etc.
5. Expected date order is to be placed *or* expected date of arrival.

2. ELECTRICITY

In deciding on your equipment, please note which kind of electricity you expect to use, for there are three basic types in India. Proper selection of equipment will allow you to use all three at a minimum of expense, equipment and bulk.

1. 230 volt 50 cycle AC (alternating current).
2. 230 volt DC (direct current).
3. Rural areas with none, where you may use either.

A. *Battery Operation.*

Use direct or with inverters giving 115 V. @ 60 cycles AC.

1. Use auto 6 V battery, which may be charged sufficiently if you use your car enough. Or,

2. Purchase heavy duty 6 V. batteries. U.S.A. about $ 10.00. India about Rs. 120.

3. Get a battery charging device; for $10 to $50. Rs. 200.

(*a*) To work off of 230 V AC power or
(*b*) To work off of 230 V DC power or
(*c*) To work off of your car engine.
(*d*) Gas electric charger, *i.e.*, "Kato" generator charger. Portable.
(*e*) Wind charger. (Montgomery Ward, etc.) Be sure you have sufficient prevailing wind for this.

4. Get a hydrometer with directions to test your battery.

B. *Generator Operation.*

1. Purchase a 1000 watt minimum, better 1500 watt, 115 V. 60 cycle AC gasoline operated generator with manual starter. This is large enough to operate any equipment, including a sound projector, *i.e.*, Home-Lite generators, or Kato generator.

Or Concord Radio, Cat. ‡C19821, Model ‡26HAB4, $257.25.

A few isolated areas have 110 V., AC or DC varying cycles. These will have to be dealt with as the individual case arises.

To tell which current you have, ask the power company whether you have 1, 2 or what? Be specific or you will be greatly disappointed in getting the wrong equipment.

Provide yourself with the neon tester listed below. These light upon contact with electricity from 60 to 500 V., AC or DC. You can tell.

(*a*) The approximate voltage and whether,
(*b*) AC (both filaments light) or
(*c*) DC (one filament lights).

Allied Radio Corp., 60 volts to 500 volts. Neon tester, $ 0.50. Or Chicago Telephone and Radio Co., New Delhi.

3. OPAQUE PROJECTORS

For general use, I recommend the Spencer Delineascope, Model V, 500 watt medium prefocused bulb, electric blower. Projects 6″ x 6″ opaque pictures, books, magazines, coin and stamp collections, etc., with two postcard adapter platens.

1. Standard: 120 V. AC and DC.

(*a*) For use on 230 V AC, also order transformer ‡3.
(*b*) For use on 230 V DC order special resister from the manufacturer.

2. Special order: 230 V. AC and DC model available. No transformer or resister needed.

3. Equipment: Order spare bulbs ‡8 for the proper voltage.

For lantern Slides (old size 3¼″ x 4″) either.

1. Order Model VA instead of Model V, same bulbs.
2. Or order adapter unit for Model V to convert it into VA.
3. Use: Will project.

(*a*) Lantern slides.
(*b*) Modern 2″ x 2″ slides, Kodachrome or plain.
(*c*) *Single* frame filmstrips only.

I do *not* recommend this additional unit unless your work requires use of the old style lantern slides. It is much better to have two separate machines, *i.e.* Model V and the SVE—AAA, for wider, more versatile use, at almost the same cost.

Costs: Model V $ 155.00
Model VA $ 205.00
Adapter $ 50.00

4. SLIDE AND FILMSTRIP PROJECTORS

I recommend the S.V.E's Model AAA, equiped SPECIALLY with battery adapter cord set to the factory, case, 5″ lens, automatic rewind device, semi-automatic side changer, and attachment for showing BOTH single frame and double frame filmstrips. Cost $ 85.00.

Voltage: Order the bulb for your particular use, they can be changed in one minute.

All these bulbs are interchangeable, so why not have spares of ALL of the three to fit all requirements?

(*a*) 230 V. AC and DC, bulb ‡2 (the most convenient)
(*b*) 120 V. AC and DC, bulb ‡1 (the cheapest to use)
(*c*) 6 V. DC battery use, bulb ‡7 (for village use)

If you have 230 V. DC and wish to use the 120 V. bulbs, order Special resister box type, SVE 300 Watt size $ 12.00 (Expensive to use).

If you have 230 V. AC, and wish to use the 120 V. bulbs, order transformer ‡3. (The cheapest to use; cheapest bulb, and the transformer costs nothing to run).

Note: For village use, be sure you have use of or own a 6 V. auto storage battery and a means of charging it. See section 2A.

I recommend for general use the extra purchase of 3″ and 7″ lenses to increase the adaptability of your projector. See notes under 9.

5. PHONOGRAPH-MOTORS

(For use through a radio, public address unit, or movie projector sound unit). I recommend: Model D, Green Flyer, dual speed, General Industries phonograph, governor controlled motor. 115 V. 50 to 60 cycle AC, only. Allied Radio Corp., Cat. ‡85 210, $16.45.

Possibly can be supplied for 230 V. 50 to 60 cycle AC.

This may be easily mounted in your own wooden box, easily made.

Use: Can play all records, 10″ or 12″, commercial or homemade, standard speed of 78 rpm. (revolutions per minute) or slow transcription speed 33 1/3 rpm. The governor controlled motor allows you to change the speed to compensate for abnormal voltage.

6. PHONOGRAPH—PICK-UP-ARM

1. In hill stations or where temperature will NOT go above 120°F or where humidity is not high, any standard crystal type pick-up-arm assembly is best, using replaceable needles, i.e., Allied Radio Corp. Cat. 65–306, "Glider" Shure 96 A pick-up with high voltage output, 1⅛ ounce pressure. $4.17.

2. In very hot climates (or very moist) the dynamic or magnetic type is required. These also require extra amplification, usually furnished by special pre-amplifiers, which may be connected to most amplifiers easily.

i.e. The General Electric Variable Reluctance Cartrides, improved type No. RPX-040, plays any standard record, uses replaceable needles. Comes with sapphire needles, ·003″ radius for ordinary records. Fits in old pick-up-arm using two screws ½″ apart (standard), Cost $5·85.

This cartridge also comes already installed in a good pick-up-arm UP A–004. Cost $9·38.

Also—requires Phono Pre-amplifier, self powered model ‡ UPX-003. Plugs into 110 volts AC and amplifies the voltage output of the above cartridges to the equal of older crystal pic-ups. Cost $9·38.

Other variable reluctance cartridges and associated pre-amplifiers are rapidly appearing, but the above is one of the best and cheapest.

Advantages: Stands high temperature and moisture, has very good frequency response, giving you the richest tones the record or amplifier can handle.

7. NEEDLES

I recommend for general use a "Shadow graphed" type of needle useful for 10 to 20 records. Permanent needles are too easily damaged in portable use, i.e., Allied Radio Corp. Cat. ‡65–826 Red Shank needles 100 for $0.46.

8. MOVIE PROJECTORS: SOUND 16 MM.

I recommend a sound movie projector as an all round audio-visual tool, under the care of a skilled person only, because it will:

(*a*) Project all 16 mm. film, either sound or silent.

(*b*) Provide a convenient sound amplifier for use with a phonograph turn table or a microphone to make a public address system.

Make: Many projectors will fill your needs, such as DeVry Corp., Victor Animatograph Co., Bell and Howell Co., RCA, Natco, and others, as long as you see that they meet the minimum specifications listed below.

Price: Range from $450 to $600. Your Mission Board may be able to get a 25% to 40% discount on certain company's products. Enquire of them.

Specifications: In ordering, these are very important features to be required of any selection:

(*a*) Governor type motor (not synchronous) to work on 50 to 60 cycle 115 V. AC.

(*b*) 2 Speeds: 16 frames per sec. for silent film and 24 f.p.s. for sound.

(*c*) Provision for connecting a high impedance microphone and a phonograph pick-up.

(*d*) Standard 2″ lens and 750 watt illumination.

(*e*) Reasonable safety devices to protect the film: fire screen, automatic clutch.

(*f*) Capacity: At least 1600 ft. reels (2000 ft. reels are rarely needed).

(*g*) Standard size models are best. New lite-weight and cheaper units may not have enough volume for a large auditorium.

Equipment

(*a*) Spare set of 1 each of all radio tubes in the amplifier.

(*b*) 2 pilot lamp spares.

(*c*) 2 exciter lamp spares.

(*d*) 1 photo electric cell spare.

(*e*) 6 projection lamps ‡5 (unless specially changed).

(*f*) Tools: camel's hair brush, oil, screw-driver, bone scraper.

(*g*) Proper transformer, resister, inverter; depending on your needs. See below.

(*h*) Splicing equipment: For all movies, most any professional splicing machine will do. Cost from $5.00 on up. Better models, easier to use, include re-wind reel arms for handing the film.

Use film cement sparingly and apply sufficient pressure immediately. Protect from evaporation.

If the splices do not hold, and no fresh cement is available, your old cement may be made usable by adding its volume of acetone, available at any chemist or druggist and perhaps a drop or two of glacial acetic acid (100%). Pure acetic acid may sometimes work but its odor alone will soon suggest that you find something else that will work.

Recommended additionally:

Phonograph motor and pick-up-arm, as described.
Microphone as described.

VOLTAGE ADAPTION: Unless special provision is made, your projection will not work on direct current.

(*a*) To use on 230 V. AC ONLY, order Transformer ‡4.

(*b*) It is possible to rewire your projector switches to use bulb ‡6 and transformer ‡2 for the rest (motor, and amplifier).

(*c*) To use on 230 V. DC, it is necessary to rewire your projector switches to use bulb ‡6 and Inverter ‡1 for the rest, or you may use a large and expensive inverter. Rs. 1500.

(*d*) If the AC voltage in your area is abnormally low or high, order adjustable transformer ‡5 instead of ‡4 as in (*a*).

(*e*) If the DC voltage is abnormal, order transformer ‡ 6 in addition to the equipment listed under (*c*), to change the output of the inverter to normal.

Abnormally high or low voltage will certainly produce poor sound, if any at all.

Movie Projectors: Silent 16 mm.

Cheaper in the long run to buy the Sound Projectors.

Price: Range $125 to $350.

Specifications

(*a*) Modern one-sided sprocket system, so you can when desired, use 16 mm. sound film on your silent projector (pictures only).

(*b*) 115 V. AC and DC model. (230 V. AC and DC possible).

(*c*) Variable speed control.

(*d*) Standard 2″ lens and 750 watt illumination (same).

(*e*) Reasonable safety devices (same).

(*f*) Capacity (same).

Equipment

(*a*) 2 pilot lamps.

(*b*) 6 projection bulbs ‡ 5 (unless specially changed).

(*c*) tools (same).

(*d*) For 230 V. AC order transformer ‡ 4 (or ‡ 5), or

(*e*) Rewire projector switches to use bulb ‡ 6 and transformer ‡ 1 for the rest.

(*f*) For 230 V. DC order a resister to match from the projector manufacturer. It is expensive in that it uses as much electricity as the projector. Or,

(*g*) Rewire projector switches to use bulb ‡ 6 and either

1. Order special small resister to match the motor, or
2. Run the motor on inverter ‡ 1.

(*h*) Splicing equipment.

9. LENSES

To give the same size pictures:

		Small Room	Auditorium (standard)	Long Range
SVE—AAA.	Projector 16 mm. movie.	3 inch lens.	5 inch lens.	7 inch lens.
	Projector 8 mm. movie	1 "	2	4 " "
		½ "	1	2 " "

Spare lenses cost from $ 15 to $ 30.00.

10. MICROPHONES

Crystal mikes may burn out in high temperature, same as crystal pick-ups. I recommend for:

(*a*) All general use a dynamic or magnetic type, high impedance, with a rating of at least—50 db, proper cord and plug, Semi-directional. *i.e.*, Allied Radio Cat. ‡99—304 $14.46.

(*b*) Public address use, the same specifications, except Uni-directional, i.e. Concord Radio Cat. ‡C13610. $18.82.

11. PUBLIC ADDRESS SYSTEM

I recommend for general use:

(*a*) The sound movie projector amplifier, with accessories, or

(*b*) The recording machine, or

(*c*) Otherwise.

1. For small gatherings, indoors or out, 15 watt unit, 115 V 50 to 60 cycle AC.

i.e., Allied Radio. Amplifier only, Cat. ‡ 93—024 $ 38.50 also Matching 12″ speaker and case, approx. $ 15. and transformer ‡ 1 for AC use.

2. For large outdoor meetings, over 1000 people, order 30 watt unit 115 V. 50—60 cycle AC.

i.e., Allied Radio. Amplifier only Cat. ‡ 93—146. $ 56.95 also Matching 12″ speaker and case approx. $ 15. and transformer ‡ 2 for AC use.

3. For portable use either:

(*a*) 7 watt unit, 115 V. 50—60 cycle AC (also use in small classrooms). *i.e.* Allied Radio. Amplifier only ‡ 93—017. $ 22.50 also matching speaker ‡ 93—452. $ 8.95 also inverter ‡ 2 to operate on one 6V car storage battery, or

(*b*) 7 to 10 watt amplifier with matching speaker, already equipped to run on 115 V 50—60 cycle AC and also 6 V DC. Also order transformer ‡ 1 to use on 230 V. AC only.

(*d*) Include in your plans one of the microphones listed.

(*e*) Consider a phonograph turn-table and proper pick-up combination.

(*f*) Current: To operate any of the above on 230 V DC order inverter ‡ 1.

12. RECORDING MACHINE: DISC CUTTERS

Do not plan to use crystal recorders when they may be subjected to temperatures in excess of 120°F at any time. If so, a magnetic cutter may be substituted for the crystal by some companies. At present I recommend the Wilcox-Gay Recordio, modes 6A20 price $ 225. ($ 30. discount?) complete with microphone, crystal, which you may be able to exchange towards the other more useful type for India, semi directional type. 115 V 60 cycle AC. Current: If for 230 V. DC order inverter ‡ 1.

If for 230 V. 50 cycle AC, order:

(*a*) Motor exchange in U.S.A. factory installed 50 cycle motor instead of 60 cycle motor and

(*b*) Transformer ‡ 1.

Supplies: Recording discs, Allied Radio Corp., orange label 10″ discs, ‡ 69—112, $ .23 each.

Cutting needles: Steel, ‡65-900, $15.

Disc Recording Machines are more difficult to use than wire or tape Recording Machines, but the records made may be easily played elsewhere on any good electric phonograph.

Wire and Tape Recorders:

Wire or tape recorders are $150-300, and have many varied uses—Language study, long talks, etc. The same wire or tape may be re-used many times for new recordings.

Recommend: Brush "Sound Mirror" Tape Recorder, Model BK-414, designed for operation on 105-120 volts, 60 cycle, AC Power. The Brush Development Co., 3405 Perkins Avenue, Cleveland 14, Ohio.

Caution: All motors should be governor controlled so their speed will be proper on either 50 or 60 cycle current.

13. SCREENS

I recommend Glass Beaded Screens for Auditoriums because they are 50% brighter, *unless* people must sit far off to the sides or very close to the screen.

Sources: Radiant Screen Corp., DaLite Screen Corp., etc.

Discount: 33% to Boards.

Type: Wall hanging type, cheapest.
Folding tripod type, best in general.
Box folding support type.

Sizes: *Home use* 40 inch square, tripod.
i.e. Radiant Model DL, Tripod, glass beaded, $ 22.50.

Classroom and District Work, 60 inch square.
i.e. Radiant Model DL, Tripod, glass beaded, $ 43.00.

Large Auditorium, either
Radiant Model WE, wall type, 8 feet square, $73.00 or
Radiant Model WE, wall type, 10 feet square, $105.00.

I recommend square sized for general use with all types of projected matter.

For Outdoor Use:

Usually people crowd your screen so that you should not use the glass beaded type. I recommend either a good whitewashed smooth wall (excellent) or a portable folding matte surface screen—same sources and prices as glass-beaded type.

For battery operated low intensity projection, I still urge the glass beaded screen because of the need to conserve brightness.

14. TRANSFORMERS

Allied Radio Corp. primary 230 V. AC to 115 V. AC secondary.

1. Cat. ‡ 62—511 Size 150 Watts. $ 4.15.
2. Cat. ‡ 62—512 Size 250 Watts. $ 5.15.
3. Cat. ‡ 62—513 Size 500 Watts. $ 6.55.

Jefferson or Sola Transformer Co.

4. 1000 watt capacity. Approx. $ 35.00.

Variable transformer, 130 to 260 V. input, 50—60 cycle AC, 1000 watt capacity, output of 115 V. AC.

5. Bell and Howell Co., $ 104.00 (I believe this can be duplicated direct from transformer companies much cheaper).

Constant Voltage transformer for regulation of erratic A.C.

6. 90 to 130 V. input 50 cycle, 200 watt, 115 V. output, approx. $50.00.

15. INVERTERS

Order spare vibrator to Match your units @ 5.00. Allied Radio Corp.

1. Cat. ‡ 80—009. Input 220 V. DC. Output V. 60 cycle AC, 150 watts continuous 250 watts intermittent, $ 28.00.
2. Cat. ‡ 80—000. Input 6 V. DC output 110 V. 60 cycle AC, 75 watts continuous, 85 watts intermittent, $ 25.00.

16. PROJECTION BULBS

	GE Mazda type	Volts.	Watt.	Price
1	T 10 PreFocus Base	120 V.	300	$ 2·70
2	,, ,, ,,	230 V.	,,	4·05
3	,, ,, ,,	120 V.	500	3·50
4	,, ,, ,,	230 V.	,,	5·25
5	,, ,, ,,	120 V.	750	4·10
6	,, ,, ,,	230 V.	,,	6·25
7	,, ,, ,,	6 V.	108	2·05

12 V. and 32 V. also available.

8. Medium PreFocus Base 120 V. 500 W. $2.20.

Always order 120 volt bulb instead of 110 or 115 volt, as they will last many hours longer.

17. SOURCES

INDIA

Ama, Ltd., Canada Buildings, Hornby Road, Fort, Bombay.
Patel, Ltd., Hornby Road, Bombay.
Central Camera, Hornby Road, Bombay.
Kodak House, Hornby Road, Bombay.
Radio Supply Stores Ltd., 3, Dalhousie Square, Calcutta.

Chicago Telephone and Radio Co. Ltd., 68, Queensway, P.O. Box 47, New Delhi.

General Radio and Appliances Ltd., 16, New Queen's Road, Bombay 4.

U.S.A.

Allied Radio Corporation, 833 W. Jackson Blvd., Chicago 7, Ill., U.S.A.
Concord Radio Corporation, 901 W. Jackson Blvd., Chicago 7, Ill., U.S.A.
S.V.E. 100 E. Ohio St., Chicago, Ill., U.S.A.
Wilcox-Gay Corporation, Charlotte, Michigan.
Spencer Delineascope, American Optical Co., Buffalo 15, New York.
Tape Recorder Co:
De Vry Corporation, 1111 Armitage Ave., Chicago, Ill.
Bell and Howell Co., 7100 McCormick Road, Chicago 45.
Victor Animatograph Corporation, Davenport, Iowa.
Ampro Corporation, 2839 N. Western Ave., Chicago 18, Ill.
For more makes and models see the latest magazine listed below.

18. BIBLIOGRAPHY

BOOKS

Goldsmith and Giesel "Techniques of Recording" Chicago: Gamble Hinged Music Co., 1939.

"Projectionist Manual" U.S. Government, 25*c*.

"Recommended Procedure and Equipment Specifications for Educational 16 mm. Projection". New York: National Research Council, 1941.

Schreiber, R.E., and Mannino, P. "Practical Problems of Projector Purchase" Educational Screen, Jan. 1946.

"Preparing the Classroom for Sound Motion Picture Exhibition" Educational Screen, Dec. 1945.

"Provisions for Silent and Sound-Slide Film Exhibition" Educational Screen, Feb. 1946.

"The Projectionist Handbook" Chicago: Business Screen.

PERIODICALS

"Business Screen", Chicago: Business Screen Magazine, Inc.

"Educational Screen", Chicago: Educational Screen, Inc.

"Indian Documentary" Adelphi, 3 Queen's Road, Bombay. Rs. 3/ year.

Note: Be sure to get the complete servicing manual from the manufacturer for any equipment you purchase.

CHAPTER V

TIPS ON OPERATING EQUIPMENT

JONATHAN C. LYALL[1]

ONE of the advantages of the 16 mm. cine projector and the 35 mm. filmstrip projector is—portability. Unlike the fixed projection arrangement of the local movie theatre, the 16 mm. cine show can be held under all kinds of conditions—indoor or outdoor—in a school hall or community centre or even underneath the stars at some isolated rural place.

Under these widely varying conditions, putting on the best show possible depends largely on the skill in handling the equipment and the techniques of good showmanship. No matter how good the photography or how valuable the aid is educationally, a good deal of its value may be lost, if it is given poor handling in projection. For good projection is the final realization of all the art and skill which has gone into picture making. The best projection goes unnoticed, while poor projection is marked by distractions and interruptions.

Good showmanship implies familiarity with the mechanism of many varied types of audio-visual equipment; a sense of good theatre and basic knowledge of successful procedure to assure the nearest to perfection which can be achieved in putting images on the screen and reproducing sound. The basic skills in handling the equipment can be acquired through careful study and practice.

ROOM ARRANGEMENT AND SEATING

Generally speaking the projection room should be longer than it is broad, and may be equipped with black out material so as to make it possible to darken it for projection purposes without too much distraction. Attention must be given to the way in which the audience is to be seated. The distance of the farthest seat from the screen should not be more than six times the width of the picture. The audience should not be seated closer to the screen than twice the width of the picture. The "Viewing angle" from which spectators see the picture must be carefully considered. The best general rule to be followed is that the boundary of satisfactory area in relation to the screen position be limited to a maximum of 30 degrees. This condition is approximately fulfilled when no row of seats is longer than its distance from the screen. If people be seated at the ends of front rows the pictures will be distorted for them without their realising the reason for distortion. In case a beaded screen is used, pictures will also be much less bright from the side angle.

OPERATING A 16-MM PROJECTOR

Proficiency in the operation of a 16 mm. projector demands skilful projection, free from delay, distractions and "trouble". The following procedure and suggestions will help in overcoming last minute difficulties frequently encountered by those engaged in the operation of projection equipment.

[1] Mr. Jonathan C. Lyall, Chairman of the Audio-Visual Aids Committee of the North India Synodical Board, is in charge of the Audio-Visual Work in Fatehgarh, U.P.

SETTING UP EQUIPMENT

1. Read CAREFULLY the directions which accompany the projector. These along with the threading chart should be fastened inside the projector case where they will not be lost.

2. Check the equipment before use. Clean the machine according to instructions. Film gate, the lens, mirror of sound optical system and the condensers should be FREE of dust.

3. Place the projector at the rear of the room on a stand or table of a height which will permit projecting over the heads of the audience.

4. Place the screen high enough so that everyone can see the entire picture.

5. If using sound equipment put the speaker near the screen and off the floor. Placing the speaker on a cardboard box will help.

6. Arrange the extension cords so that people will not stumble over them in the dark.

7. All switches should be OFF before plugging in cords, silent-sound and forward-reverse switches should be set properly.

8. Cords must be unlinked and FIRMLY inserted.

9. Remove loose parts such as extra empty reels, etc., from speaker case.

10. Aim and focus before threading. To do this first turn on motor and lamp. Then adjust projector to screen so that the light fits the screen in such a way as it is neither larger or smaller than the screen. Remember the closer the projector to the screen the smaller the picture. The farther the projector from the screen, the larger the picture will be.

THREADING THE FILM

1. If using sound equipment, turn ON amplifier to warm it up. If you can hear a small cracking sound as the volume control is turned on and off, the amplifier is ready.

2. Check film to see if it is properly wound. Frames should be UPSIDE-DOWN beginning with the title. Silent film has sprocket holes on both sides, sound film on only one side. The sound track (wavy lines on side of the film) must not be threaded in the sprocket teeth. DO NOT USE SOUND FILM ON A SILENT PROJECTOR. Be careful of film especially of SOUND TRACK. Experienced operators even make mistakes.

3. Allow enough loose film (about 2½ feet or so) to thread the projector and to reach the take-up reel.

4. Top sprocket; film placed properly, held and locked.

5. Swing film gate lever upward to open the film gate. There must be a proper size loop on the film before it goes into the film gate and just after it goes through. This is necessary because the film moves intermittently and slack must be allowed. Pass the film through the channel behind the lens being certain that it is fully seated in this channel. Close the film gate.

6. Second sprocket: Film placed properly, held and locked.

7. Third sprocket: Film placed properly, held and locked.

8. Allow proper tension on the film over the sound drum. If the film is not snugly seated around the sound drum, the sound will be fuzzy.

9. Place the film around the bottom of the take-up reel, and revolve the reel clockwise to remove film slack.

10. Check film in each sprocket. Turn clutch control to the extreme clockwise position, then turn hand-power knob, several clockwise revolutions to engage the film with the shuttle teeth; to see if the film properly goes through the gate and on to the take-up reel. Should the lower loop slide upward, open the gate and reset the loop to the outline on the gear case.

PROJECTING THE FILM

1. Start the motor, turn on the sound and adjust the focus. To sharpen focus, revolve the lens first in one direction and then in the other until the point of maximum sharpness is found. If you have time to get ready, the film should have passed the numbers on the leadre strip and open directly on the title with the film in focus.

2. Frame the picture properly. An improperly framed picture has part of a second picture showing at the top or the bottom of the screen. There is a framing mechanism that adjusts this. If framing moves the picture off the screen readjust tilt adjustment knob.

3. Check film by feeling edge before it enters the take-up reel.

4. Adjust proper volume for audience. The volume control operates similarly to volume controls on radio sets and either sufficient volume for the largest room or minimum volume for the smallest room may be achieved. Advance or retard it as necessary to produce the desired volume of sound.

5. Adjust best tone for audience (high for speech, low for music). The tone control is also operated similarly to a tone control on a radio receiver. By means of this control, frequency range can be compensated for in accordance with the acoustical conditions under which the equipment is being used. At each showing set it for the most desirable reproduction.

STOPPING ON FILM

(For projectors with clutch).

1. Turn down volume.

2. If no picture appears, turn by hand setting knob. (Some models have "still lever").

CONTINUE PICTURE: THEN REVERSE FILM

(For projectors with reverse lever or reverse switch)

1. Turn down sound volume.

2. Stop motor before reversing.

STOPPING. (End of film)

1. Turn down sound volume.
2. Turn off lamp (to prevent white screen).
3. Turn off motor.

REWIND AND PACK UP EQUIPMENT

1. After the reel has been run through, you may want to rewind it. The rewinding mechanism is not the same on all projectors. It is a mechanism that enables the take-up reel to run faster than it did when the films was unreeled.

2. After the show disconnect cords. Coil cords neatly and pack up the equipment.

FILM CARE AND MAINTENANCE

The Common sources of Film Damage are:

1. Equipment in poor condition.
2. Dirty projector.
3. Improper threading.
4. Careless rewinding.
5. Incorrect splicing.
6. Thoughtless handling of film.
7. Improper storage.

FILM DAMAGE CAN BE AVOIDED IF THE FOLLOWING PRACTICES ARE FOLLOWED:

1. Keep projector clean and in good repair.
2. Thread projector PROPERLY.
3. Occasionally check film as it goes on take-up reel for damage.
4. Avoid use of bent reels.
5. Rewind and inspect film carefully. Repair breaks, tears, and torn sprocket holes. Make neat, strong and proper splices.
6. Store film in cool place.
7. Keep film off floor.
8. Never cinch film on reel.

SPLICING

Even the best of operators may break a film. Knowing how to properly splice a film is an important part of the operator's job. A film with a good splice is as strong as the original.

FOR A GOOD CLEAN SPLICE USE THE FOLLOWING PROCEDURE:

1. Clean splicer thoroughly.
2. Insert film in splicer, emulsion side (dull) up. Be sure perforations are seated on pins.

3. Cut film leaving clean cut edges.
4. Moisten exposed edge of film with water.
5. Scrape emulsion from film.
6. Wipe off excess water.
7. Apply fresh film cement. DO NOT USE TOO MUCH CEMENT. Place film in right hand lock on scraped edge of left hand film.
8. Apply pressure and allow cement to dry a few seconds.
9. Wipe off excess cement.
10. Check splice for strength, smoothness, and cleanliness.

CARE OF EQUIPMENT

1. *Question*: Approximately how MUCH and how OFTEN should a projector be oiled?

Answer: See manufacturer's instructions for your machine. One drop of projector oil after each 4 hours of operation at SOUND speed; and one drop of projecter oil after each 16 hours of operation at SILENT speed is a general rule.

2. *Question*: How can you tell when cleaning of projector is needed?

Answer: "*WHISKERS*" around the projected light on the screen.

3. *Question*: How is the aperture or film gate cleaned?

Answer: Clean it with the brush provided; or a pipe cleaner; or with a soft cloth dampened with carbon tetrachloride, or with a soft wood stick, but NEVER with a metal object.

4. *Question*: How are the film channel, sprockets and sound drum cleaned?

Answer: Same as No. 3.

5. *Question*: How often is the above cleaning necessary?

Answer: Preferably before each showing and clean thoroughly once a week.

6. *Question*: What glass parts need cleaning and how?

Answer: Projection lens (front and back surface—NEVER take it apart), condenser lenses. Clean them with soft, clean handkerchief, lens tissue, or kleenex. Lens fluid may be used if finger prints or oil are found on lens.

7. *Question*: How is the lamp removed for replacement?

Answer: See manufacturer's instructions. If burned during a show, remove it with a cloth otherwise you will burn your fingers.

8. *Question*: Where is the amplifier fuse located?

Answer: See your instruction manual. The fuse usually (2 ampere fuse) is near the cord recepticle on the back of the projector case.

9. *Question*: What precaution should be observed before removing and replacing the amplifier fuse?

Answer: Disconnect the line cord.

10. *Question*: What two spare parts are most needed?

Answer: Projection lamp and exciter lamp.

11. *Question*: When is the clutch used?

Answer: When rewinding film; when stopping-on-film (showing a "still); when turning by hand to check threading.

CARE OF FILM

1. *Question*: What damage to film results if projector is not properly cleaned before use?

Answer: Scratches on the film surface and sound track surface.

2. *Question*: What damage results if projector is too frequently or generously oiled?

Answer: The film becomes oily.

3. *Question*: What causes sprocket punches in film?

Answer: Improper threading; sprocket holes of film not meshed with sprockets.

4. *Question*: What causes sprocket holes to be torn out?

Answer: Too small loops (one or both). On some models, take up adjusted for large reel when using a small reel.

5. *Question*: What would you do if you had rewound a film too loosely?

Answer: DO NOT pull the end of the film to tighten; rewind it again using light hand pressure on the reel from which the film is coming off.

TROUBLE SHOOTING

1. If the screen goes white, the film is probably broken.
2. If the screen goes black, the lamp is burned out.
3. If the picture stands still and the motor continues to run, you may have a broken belt from the motor, a broken clutch, or the clutch may be out.
4. If the picture stands still and the motor stops, you may have a burned out motor, a burned out motor fuse, or a broken electrical connection to the motor.
5. If the film jumps or chatters, the film is probably a poor one. Or your projector may need oiling or there may be dirt around the pull-down mechanism or the pull-down mechanism may be worn.
6. If you have a loss of loop, it may mean improper threading. You may have a poor film or a worn pull-down mechanism.
7. If part of the film is out of focus, your screen may not be at right angles to the path of projector. Or the mechanism which holds the film while passing the aperture may be faulty; or you may have a defective lens.
8. If your picture seems dim, the film itself may be the cause. Or your lamp or reflector may be soiled or deteriorated with age. There may be too much light in the room. Your screen may be dirty.
9. If your lamps burn out easily, you are using higher voltage than that for which the lamp is made, or your voltage is not properly adjusted.

10. If projector operates, but there is no sound and no light from the exciter lamp, your exciter lamp may have burned out. Your amplifier switch may not be ON. Your speaker cord may not be plugged in firmly at both ends.

11. If you have low-pitched, slow speaking in a sound film, you may have set silent speed instead of sound speed.

12. If the sound stops suddenly and the connections are all good; the photo-electric cell may have burned out.

SAFETY PRECAUTIONS

Modern audio-visual aids equipment is designed with the safety of the operator in mind. However, care must be taken in handling any piece of electrical equipment. In handling audio-visual equipment the following practices should be observed:

1. Never use a fuse of higher rating than specified.
2. Disconnect the power cord when checking fuses.
3. Never leave the projector while it is running.
4. Always use a cloth or lamp remover to change hot lamps.
5. Do not use worn or frayed power cord.
6. Keep a flashlight handy in case of power failure.
7. Secure projector and speaker so that there is no danger of them being knocked over.
8. Provide substantial stands for speaker and projector.
9. Keep sound and power cords out of aisle whenever possible.
10. Avoid excessive rewind speeds.
11. Do not clean projector gate or sprockets while running.
12. When operating sound projector in a D.C. area, keep ALL switches of the projector on ON position.

OPERATOR'S PROGRESS CHART

	DATE	APPROVED
Sound Projector		
Silent Projector		
Combination Opaque & Slide Projector		
3¼ X 4 Slide Projector		
2 X 2 Slide and Film Strip Projector		
Screens		

OPERATIONS TO BE LEARNED

Sound Projector

Remove from cases and set up for operation ——
Frame aperture on screen ——
Recognize sound film ——
Recognize if film needs rewinding ——
Thread film for sound proj. ——
Thread film for silent proj. ——
Operate by hand for several frames ——
Focus properly ——
Frame picture on screen ——
Stop for single frame proj. ——
Control sound quality ——
Reverse machine ——
Rewind film ——
Clean lenses ——
Clean film gate ——
Oil machine ——
Replace projector bulb ——
Replace exciter lamp ——
Replace belts ——
Replace machine and speaker for return to storage ——

Silent Projector

Remove from case and set up for operation ——
Frame aperture on screen ——
Recognize film ——
Recognize if film needs rewinding ——
Thread film properly ——
Operate by hand for several frames ——
Focus properly ——
Start and stop properly ——
Frame picture on screen ——
Stop for single frame proj. ——
Reverse machine ——
Rewind film ——
Clean lenses ——
Clean film gate ——
Replace projector bulb ——
Replace in case ——

Combination Opaque and Slide Projector

Remove from case and set up for operation ——
Frame aperture on screen ——
Insert slides properly ——
Focus for slides ——
Change to opaque proj. ——
Focus for opaque proj. ——
Show opaque materials ——
Change bulb ——
Clean lenses ——

$3\frac{1}{4} \times 4$ Slide Projector

Remove from case and set up for operation ——
Frame aperture on screen ——
Insert slides properly ——
Focus properly ——
Clean lenses ——
Replace bulb ——

2×2 Slide and Strip Film Projector

Remove from case and set up for operation ——
Frame aperture on screen ——
Insert slides and/or strip film
Change bulb ——
Clean lenses ——

Screens

Determine correct distance for screen from projector ——
Set up properly ——
Darken room as needed ——
Fold up properly ——
Gen. care of screens ——

CHAPTER VI

THE MOBILE UNIT

THEODORE ESSEBAGGERS[1]

DOES not all that is said in the *Audio-Visual Handbook for India* lead to the conclusion that in some way our aids for education and evangelism must be transported from place to place as strategy and need demands?

The evangelist that sits at home is of no use. Unless all this excellent equipment that we have can be moved to the places where it can serve the people, there is only limited use for it. Our message must take wings and our equipment must be put on wheels. "I visualize each mission area, each church and district having a mobile unit well equipped, with two or three attendants, moving from place to place according to the determined policy, working by day and night. It must be so built and so constituted that it is a self-contained unit supplying its own power and illumination. It sells and distributes literature wherever it goes. By night it preaches the Way of Salvation to thousands from the projection screen and through the loud speaker. By day it follows up the lessons taught by night with all possible means. It does not wait for the people to come to it, it goes out to meet the people," says Rev. Ralph G. Korteling.

DEFINITION

The mobile unit is, as the name implies, a self-contained unit that can be moved from place to place and be ready for work on arrival. It may either be a truck or station-wagon outfitted for the purpose, or a trailer that can be hooked on to a car or team of bullocks to be drawn to the place where it is to be used.

Any vehicle that readily adapts itself to carry complete audio-visual equipment to a given place is in a sense a mobile unit. Most units are of this type at this stage of audio-visual work in India as few missions or churches can afford to set aside a car or truck to be used exclusively for audio-visual work. However, there is an increasing number of commercial vehicles touring the countryside selling their wares with the use of projected programmes, recorded music and loud speakers. Provincial governments have put fleets of mobile units on the road to promote social education and to stimulate village uplift programmes. The time is not far distant when every mission will have its own unit or units making known the name of Jesus by regular tours throughout the countryside.

[1] Rev. Theodore Essebaggers, M.A., S T.B. of the American Evangelical Mission, Raipur, C.P., is in Charge of the Audio-Visual Aid Programme of his Mission.

VEHICLE

If one is going to make his own mobile unit he should select a chassis on which he can erect a van large enough to house adequately all the equipment required for a self-contained unit. If the projector is to be fitted permanently, the height of the van should be such that the operator can comfortably stand and operate the machine. The size of the "work room" will depend upon the amount of equipment, but it is better to err on the side of too much room because equipment is sure to be added from time to time. However, one should so arrange his equipment that a comfortable size will not mean a cumbersome size. Most of the mobile units now operated by provincial governments for social education cannot get to the villages because they are too big and built too low. It will take a genius to figure out a unit that combines all the good features. The specialized Jeeps now in use by the United States Information Service, Bombay and New Delhi, with built-in generators and storage space are worth our investigation.

The trailer equipped as a unit has many advantages because it can be drawn if need be by oxen to the desired destination. Furthermore, a costly motor car is not tied up when the trailer is not in use.

EQUIPMENT

This will vary according to means, experience and budget. I know of one unit that is only an old Model A Ford made into a station-wagon type of body. The missionary uses a slide and film strip projector and a small PA system, both operating from a battery power source. He projects his pictures from the front seat backward on to a wet sheet stretched across the back of the van while the commentary goes out over the loud speaker. This is a mobile unit, conservative and effective. I know of another person who has only a 2 x 2 projector but his van is a big school bus with bunks, a dresser and a kitchen sink and he has to take his projector outside to operate it.

Basically a mobile unit should have minimum equipment consisting of a PA system with at least one speaker—more if possible; a 16 mm. sound or silent projector; 2 x 2 slide and film strip projector; a record player; a flood light; and a generator for power. With this equipment a very desirable impression can be made and real work can be done. A sound projector is preferable to a silent projector for two reasons: (1) It can serve as an auxiliary sound system if the PA system does not work; (2) With the increase in vernacular films available the film programme can be much more versatile than if limited to silent films for which commentary must be provided.

As to the best machines for this rugged work, the chapter on equipment will give a lead. Most of the equipment available is good but requires a great deal of care.

The Onan 1500 watt generator (110 AC, 60 Cycle) has been found to be very serviceable, conservative on petrol consumption and quiet. The 1500 watt Homelite generator is definitely not suited to fixing permanently into a unit as it is too noisy. The Homelite can be used if carried some distance away from where the programme is being given. When selecting a sound pro-

jector be sure to get a projector which is rugged and for which parts are readily available in India. The C.P. Government School Mobile Units are outfitted with RCA projectors and Onan generators.

Dust works havoc with the best equipment. Therefore, in so far as possible, equipment should be boxed in dust proof containers. Bags made from the gas protector bags used in the army will serve to keep out the dust.

ARE YOU BUILDING?

If you are building now, the following excerpts from a letter from Dr. Mason Vaugh, Engineer at the Allahabad Agricultural Institute, will be of great help. He writes:

"We are building three (mobile) units here, trailers to be towed behind a motor car. Trailers were selected rather than independent motorized units because of the economy, and the saving of the cost of the truck chassis. The unit built on a truck chassis certainly has advantages but the several thousand greater investment did not seem justified in the circumstances. Two of the units are to be for use directly in the villages and towns; the third is to be somewhat more elaborately equipped and perhaps larger, and is to be a research unit for the Institute, to be mainly used by the Extension Department.

"The generator set is to be mounted amidships across the trailer, on rubber, and with the exhaust going out through a central stack so the heat and also some of the suction of the exhaust perhaps can be used to draw the heat of the engine out through the roof. It will be housed in a fireproofed compartment, with work table over it and an outside door to give air to the radiator.

"The front half of the trailer will be projection room with permanently installed sound movie projector, film strip and slide projector, twin unit record player, audio amplifier to use the records or mikes. Probably two mikes will be provided, one for a distant speaker to use with shielded line and the other for the projectionist. The effort will be to have all the equipment so installed that any unit can be used with only the throwing of the appropriate switch. We even plan to install in the upper part of the trailer wall, two or more sealed beam units for flood lighting the grounds, though there will probably be some additional flood light units with long cords for plug in use. The idea is that on arrival, the opening of one or two projection windows, a ventilating window or two and removal of a couple of dust covers will make the outfit ready for action. We want to have everything wired so that it is ready to go, changing from one unit to another involving only the switching "on" and "off". The projection room will have adequate rewind facilities and necessary servicing equipment of that sort in addition to adequate film and record storage.

"Full details of the back half have not yet been worked out but it is planned that it will have a couple of bunks; one of them folding, and a couple of camp cots so that it will be possible for a couple or more to camp in fair comfort."

From another mission comes the report of a unit which has been sent out from Canada. It is described as follows: "A Fargo panel delivery truck with

side windows, equipped with Bell and Howell projector, amplifiers on top of the truck, SVA projector and Onan generator."

My own unit is made up of a Ford army surplus ambulance. The equipment is not stationary. The projectors are a DeVry 16 mm. Sound and a View lex slide and film strip. The PA system is Webster-Rauland which runs on both 110 Volt AC and 6 Volt DC current. The microphone is a Dynamic type. The turn table handles records of both 78 and 33⅓ speeds. I have a copy of "King of Kings" and use it almost exclusively on my tours. This outfit has been in use for over two years and is giving good service. The generator is a 1500 Watt Homelite which gives more than sufficient for the programmes. All of the equipment is light and can easily be transferred from the car by two men in a few minutes. For lighting I use a set of four 100 watt bulbs which are strung out and fastened to bamboos at four corners of the area to be used.

The Central Provinces Social Education Mobile Units, previously referred to, are made up very nicely but are limited in that they cannot get out on the oxcart roads. Along regular roads, however, they do give a good performance. The unit is mounted on a Chevrolet truck chassis and looks like a school bus. The loud speaker is into the body and is over the driver's seat. Back of the driver is a small room in which the Onan generator is housed. In a dust proof boxlike compartment behind this are stored the RCA sound projector and the record player. This box for storing this equipment is work-table height and is very handy. When the projector is used it is taken from the box and mounted on a table fixed on the floor and projection is out of the back door of the unit. On either side of the table are two bunks for sleeping with cupboard space below for travel equipment. This part of the van is roomy and airy with sufficient height to stand, and when not used for projection purposes can seat at least 10 people. On the top a powerful search or flood light is mounted. This unit is made up in Bombay.

CHAPTER VII

WHAT TO LOOK FOR IN A PICTURE

E. L. King[1]

(What to Look for Series: No. 16. Devised by E. L. King[1], 1948.)

'Art speaks through the eye to the soul of man'— von Uhde.

'Remember, a good picture is a judge of us, not we of it'—Haney.

'Art any significant description of what takes place within us when we are confronted by an outer object'—Ritter.

I. WHAT ARE THE FACTS?

THIS means the *Contents* of a picture—people, buildings, scenery, and the like. Sometimes they are very simple: A woman sweeping for a lost coin, a man rowing a boat, four fishermen talking. Sometimes, however, a picture is full of characters and rich in background detail. It may in this way be full of important *information.*

II. HOW ARE THE FACTS ARRANGED?

This is called *Composition.* How are the figures grouped? How can one know which figure is the most important? Do all the lines and the light lead to this central figure? Are these lines vertical or horizontal or in between? Do these lines in themselves tell one anything—do the strokes rise or fall, point up or down? Are they dull or spirited? Are they miserly or abundant? Do they laugh or weep? Are they moving or standing still?

For example; What is the difference between up-curving or down-turning corners of a mouth?

These various behaviours of lines are like *pantomime* on the stage or *gesture* on the platform.

Arrangements sometimes take the form of masses of various sizes, sometimes of light and shade, sometimes of the place a figure occupies, sometimes of the direction of lines. Sometimes this arrangement can be studied by shaping the hands like a telescope and looking through the opening.

III. WHAT DO THE FACTS AS ARRANGED MEAN?

This is the *Message* of the picture. It is the IDEA, or the FEELING, or both, behind and in the picture. It is the reason the artist painted it, what he wishes to convey through it, the reason why it is being studied. Try to imagine how he felt as he painted it, how the people in it feel as they play their part; how do *you* feel as you look at it? If *you* were in it what do you think you could see on the other side of that hill, around that bend in the road, inside that forest? If that boat moved out of the picture

[1] Rev. E. L. King, Leonard Theological College, Jubbupore, C.P., is the Educational Secretary of the Methodist Church in Southern Asia

what might come to take its place? If you were in that airplane what would you see? Were you to meet that person what would you think of him, what would you say, how would he reply to you?

If the picture has done its work it should be possible to express this meaning in a single sentence, as a good story, or essay, or sermon can be expressed.

The artist has taken a great deal of trouble, and months, perhaps, of time in getting his facts, arranging them, and putting meaning into them. He is entitled to attention and thought on your part.

How to Study a picture?

Sit down before it and look, *look*, LOOK, *LOOK*.

No two people see a picture wholly alike. A recent exhibition displayed 100 representations of one man by 100 artists; they were 'amazingly unlike'.

Close your eyes and look at it in memory.

Open them and look, *look*, LOOK, *LOOK* again.

Put what you have seen into words—not only the story (which is very important, of course) but all the little details that make the story meaningful.

Listen to others doing the same—have they seen things you have not? Look again!

Answer the questions under the three heads above. See if you can find a piece of music which fits the picture.

Take the pose of one of the Characters, imagine you are he—how do you *feel*?

Then: tilt your head, backward, forward, left, right
raise or lower your arms or hands
open and close your hands
raise or lower or turn your eyes
change the position entirely.

What changes in your *feeling*
in your *understanding* do these bodily
changes bring about?

If the picture is in colour study how the colours blend
tell why you like (or dislike) those the artist has used
do the colours used irritate you or make you feel comfortable? which are warm, which cold? which brace you up, which put you to sleep?

The following information may be of some help:

Colour requires a good deal of study, too much to be included here. Study Allen, or a similar handbook, if you are to go farther.

RED is a hot colour, the colour of blood, fire, zeal, love and life. It symbolizes anger. Name some picture or subjects in pictures, where it should *not* be used.

YELLOW is the colour of the sun, so represents light and life, on the one hand, and decay of life on the other; it also stands for deceit. In India it, as saffron, represents piety; in some countries it means cowardice.

BLUE represents the mind of man, truth—we say a man is 'true blue'. It also stands for heaven. But it can also represent cruelty.

BLACK suggests (in some parts of the world) mourning, evil.

GREEN stands for growth, for permanence—'evergreen', and for hope. It is calm, quiet colour. It is the colour of Youth (why?—are Youth calm and quiet?)

ORANGE is a cheerful, active colour.

PURPLE is a kingly colour, representing majesty and wisdom. It also may stand for mourning for it combines *red* (the Egyptian symbol for after-life) and blue (for eternity, and also for patience, watching, fasting).

WHITE is the colour of purity, rejoicing, the Godhead.

If the picture is not in colour tell what colours you would use if you were painting it, and why. Note that colour plays a large part in churchly art.

Other interesting things to look for are evidences of motion, size, distance and depth, weight, temperature, tactility, sound, odour and taste. After you have done all this, or as much as applies to the particular picture you are studying. Look again. Have you missed something? Have you changed your mind?

You may, next, want to *compare* this picture with another by the same artist, or of the same theme by another artist or a black-and-white copy with a coloured original. Does the comparison add to your *understanding*, and to your *feeling*, regarding the picture?

References and Acknowledgements.

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CHAPTER VIII

CHARACTER VALUES IN INDIAN ART

Mary F. Carpenter[1]

THIS article grows out of an attempt to evaluate the modern art movement in India, especially in Bengal, with special reference to its possible contribution to Christian schools, particularly in their character-building programmes.

Certain general principles about the work of The Modern School of Indian art have to be kept in mind in making such an evaluation. They will be briefly stated here, as affording the necessary context of our study.

The *first* such general principle which we may keep in mind, is, that Indian art is "literary" By this we mean that the quarrel among Western artists concerning whether or not Art should exist "for Art's sake", has not arisen. Art is not held to exist for its own sake but as the medium of a *message*.

The *second* general principle is that the "message" of Indian art is characteristically, and until quite recently, practically exclusively, a *religious* message. It is true the work of the earliest Buddhist School was not always strictly religious in its purpose, and the "Mogul" group of artists were quite objective and secular in their subjects. But the main stream of Hindu-Buddhist art has been committed to a common theme and purpose, and that theme a religious one. "*What can I sing but a hymn of the Lord?*", Mr. O. C. Gangoly, an outstanding exponent of Indian art says, "May be taken as applying not only to music, but the entire field of Indian aesthetics." This religious message, it must be recognised, has often been crude in content and expressed through a crude symbolism. A clearly discernible process of sublimation has been taking place here as in other aspects of Hindu thought and culture. Much of the work of modern Indian artists is free from the crasser aspects of earlier art. There remains, and it is this which gives to Indian art its distinctive characteristics, the religio-philosophical background which colours the entire traditional Hindu outlook upon life.

It may be of interest to try to clarify this point, asking ourselves in what way Indian art may express anything so abstract as a philosophical outlook. Mr. Cousins, an outstanding friend of the new movement, will tell us that the art of the West is just as much dominated by the Christian outlook, "every turn of the wrist" of the artist, so to speak, contributing to bring this about. If one believed all phenomenal existence to be "illusion", and, being an artist, did not wish his art to deny this dogma, in what way might the picture painted by such an artist be different from that of another who believed that, however little he might understand it, yet some sort and degree of

[1] Miss Mary F. Carpenter, retired Missionary of the Women's Division of Services of the Methodist Church, served in Bengal, and is known for her contributions to the Charterhouse Programme and her book, "Pictures in Religious Education".

permanent value must attach to objective phenomena? We might put the question negatively, and ask, what might well be discarded or passed over with a minimum of attention by the first artist? The objective phenomena being but a momentary expression of something Real which lies beneath the surface, so to speak, of the temporary form, the artist's endeavour would naturally be to express through line, form, colour, symbolism, as clearly as possible, the underlying Reality, while providing the mind of the observer with as little as possible of the objective "illusion" which might, from this point of view, only serve to beguile the mind into the mistaken notion of its reality. This being so, we should not expect to find photographic verisimilitude in pictures so conceived, nor would anatomical accuracy be of great importance, nor need the artist concern himself greatly with the mastery of light and shade. He will not quite be able to give us the "smile" of the Cheshire cat without the "cat", but he will do the best he can in that direction, looking upon his assemblage of lines, forms and colours as a mere symbol of some facet of Consciousness into touch with which he would bring the observer, not so much as a thing of importance in itself. It may very well be that the Indian artist could, if he chose, attain to equal proficiency with the artist of the West in the mastery of every principle of technique which the Western artist must master, but, for the majority of Indian artists to do so would be quite irrelevant to the purpose of their art.

Again, we might ask, if one believed that all that is, is One Life, how could art express that? If lines and forms were made to merge into each other, that would suggest it. If colour were so used as to call as little attention as possible to the distinction of one object from another, that would suggest it. If the line which outlines a human form were made continuous with the lines of the background of natural scenery, that would suggest it. All these points we may note in many of the paintings by Indian artists.

Again, if one believed that that One Life is impersonal, or, if personal, of an unknown quality, how could art express that? The device just referred to, the continuing of the lines of the human form into the impersonal background, would help to convey this conception. It is of interest, also, to note in how many Indian paintings the *face* of the human figure,—that part of the human form in which personality may be most clearly expressed,—is left unpainted, the head being so turned that the face cannot be seen. Samarendranath Gupta's striking picture which he calls "*Finale*" may be cited as an illustration of this point. There are two figures in the picture, the one a young woman groping blindly in the darkness while the lotus flower falls from her hands. The other is a veiled figure who comes in an attitude of kindliness, taking one of the outstretched hands, and striving to turn the face of the young woman to the light. The veil drawn across the face of the Kindly Helper is perhaps the artist's way of telling us that we may not seek to know more of this Presence than is revealed to us in the gesture of kindness. Here, of course, it is not impersonality which is expressed, but rather it is, "*the unknown God*".

In such a painting as Nanda Lal Bose's "The Great Journey", being a picture of the ascent by the Pandava brothers of Mount Kailasa, the dogma

of impersonality finds still another mode of expression. This picture is dramatically conceived in three scenes. In the first scene the five brothers with Draupadi are resting under a huge tree, high up on the mountain side. The second scene takes us a bit farther on, showing Draupadi fallen by the path and the four brothers of Yudhisthira growing exhausted by the difficulties of the Ascent. Slightly ahead of them Yudhisthira continues on the way, accompanied only by a faithful dog. In the third scene the figure of Yudhisthira is but a scarcely discernible speck against the background of snow-covered mountain summit, all his companions having been left behind. Thus it is seen that the nearer he approaches the End of the Journey,—the less apparent is the "illusion" of separate human personalities or personality. The human becomes less and less the key to the picture,—the vast Himalayan background of impersonal nature becomes more and more so.

The *transitoriness* of all objective phenomena is another dogma which has greatly influenced Indian art. If all that our senses may perceive be as transitory in nature as the wavelet which appears for but a moment on the surface of the Ocean, to return, a moment later to the formlessness of the Sea, an art which is an art of line only or primarily will be a more congenial instrument for the expression of such a conception, than an art which by a skilful mastery of light and shade and perspective, creates the illusion of depth and solidity, would be. In its subject matter as well as in its technique, Indian art has reflected its preoccupation with this theme.

To the above-mentioned tenets of philosophy may be added one more,—the Buddhist conception of the *sadness* of life. A strikingly large number of the paintings by Indian artists, either because of the subject matter of the picture or the manner of treatment, seem charged with the mood of melancholy.

This brief preliminary survey of the philosophical presuppositions of the work of much of the Modern School of Indian art has been necessary in order that we may understand what the artist himself wishes to express through his pictures. We have now the question as to what use the Christian teacher may make of art which has arisen from this background, especially in his work of character training. It will be evident that we are not dealing here with the work of Christian Indian artists, of whom Mr. Thomas is best known. The work of this artist while it employs the conventional technique of Indian art in general, is in its spirit and message akin to that of Medieval Christian art. It should have a wide usefulness in schools.

The suggestion which we would offer here, as to the use to be made of the work of Indian artists in general is the quite obvious one that this must involve (1) *discriminating selection* as to the *subject matter* of the picture and (2) a *method of using* the picture which will seek to prevent confusion arising in the minds of pupils as to the character values involved. In this article we are not of course thinking of advanced students but of pupils of the Middle or High School grade.

First, then, on the matter of *selection*. Because of the fact that certain ideals are in some form or degree common to both Christian and Hindu thought, and this is the more and increasingly true because of the process of

sublimation and transformation going on in the thought and aspirations of non-Christian India, it would be possible for us to find illustration in the work of modern Indian artists of a number of the ideals and traits of character which we would wish to see expressed in the lives of the future citizenship of India. Inasmuch as one of the difficulties in the way of a larger use of Indian art in our Schools is that pictures by Indian artists of the kind which it would be desirable to use are not readily obtained, I shall indicate where the picture mentioned is obtainable or has appeared. The abbreviations used signify as below:

C.A. *Chatterji Picture Albums*, obtainable from the Y.M.C.A. Publishing House, Calcutta; or Prabashi Press, 120–2, Upper Circular Road, Calcutta. Rs. 2 per volume. In 15 volumes.

I.P. *The Indian Press*, Ltd., Allahabad, *Chitraboli.*

M.H.B. Nivedita and Coomarswamy: *Myths of the Hindus and Buddhists,* Geo. G. Harrap and Co. Ltd. A very expensive volume.

P.F.A. *Punjab Fine Art Association*, 122 Corporation Street, Calcutta. The Art of Thakur Singh. 3 volumes.

P.I.A. *Portfolio of Indian Art*, by M. F. Carpenter, Oxworth Book Service, Ellangowan House, Landour, Mussoorie, or M. F. Carpenter, Pakur, E.I.R. Loop Line. Rs. 2–4 per volume, plus postage.

P.P. Prabashi Press (Usually in *The Prabashi*) Address as above.

The list given below contains most of the pictures which the writer has found which in her judgment are free from seriously disqualifying elements, and are readily obtainable. Others might have been added as useful could copies be obtained readily and in inexpensive form.

List of pictures illustrating desirable traits and ideals:

Trait	*Title of Picture*	*Artist*	*Where obtainable*
I. *Adventurousness*			
	1. "Age and Youth"	Tagore, Abanindra Nath	C. A. No. 10 and P.I.A.
II. *Appreciation of Beauty and Good-Workmanship*			
	2. "The Lover of Art"	Sing, S. G. Thakur	P. F. A.
	3. *Alpana*	Niogi, Sri Prahbhat	P. P.
	4. *Griha-Lakshi*	Natesan, M.D.	C. A. No. 2
	5. The Lacquer Worker	Gupta, M.B.	C. A.
	6. A Forest Scene (Basket Seller)	Mukherjee, B.B.	C. A. No. 17
III. *Appreciation of indebtedness to the Manual Laborer*			
	7. " Queen of the Forest " (Nepalese cooly girl with basket of vegetables)	Tagore, A. N.	C. A. No. 17
	8. At the Well	Sen, Bireswar	C. A. No. 9
	9. At the Well	Devi, Srimoti Santi	C. A. No. 10

Trait	*Title of Picture*	*Artist*	*Where obtainable*
	10. A Milkmaid	Sen, Bireswar	C. A. No. 19
	11. "In Rain and Storm"	Roy Choudhury, Deviprasad	C. A. No. 7 and P.I.A.
	(Cartman and load of grain)		
	12. Punjab Rural Life—A Glimpse (Woman spinning)	Singh, S.G.T.	P. F. A.
IV.	*Concentration*		
	13. The Toy	Tagore, A. N.	C. A. No. 9 P.I.A.
	14. Buddha	Bose, Shukurmar	C. A.
	15. The Victory of Buddha	Tagore, A.N.	M. H. B.
	16. The Trial of the Princes	Bose, N.L.	M. H. B.
	17. "Dhruva"	Haldar, A.K.	M. H. B.
V.	*Forgiveness*		
	18. Forgiveness of Chaitanya	Mazumdar, K. K.	Obtainable in loose form from O. C. Cangoly, 2, Ashutosh Mookerji R. Elgin Road, P. O. Calcutta
VI.	*Gentleness, Kindness to Pets and animals*		
	19. Playmates	Ukil, S.A.	C. A. No. 5
	20. Ramchandra and the Squirrel	Desai, K.	P. P.
	21. The Bulbul	Chugtai, M.A.R.	C. A.
	22. At the Window	Choudhury, S.S.	C. A. No. 10 and P.I.A.
	23. Call of the Woods	Roy, Charuchundra	C. A. No. 7
	24. Sakuntala	De, Sailendranath	C. A. No. 10
VII.	*Jealously, Hatefulness of*		
	25. Kakeyi, and Manthara	Dhurandhara, M.V.	C.A.
VIII.	*Leadership*		
	26. The Leader	Chugtai, A.B.	I. P.
	27. The End of the Journey Also—No. 52, below.	Bose, N. L.	Prabashi Press
IX.	*Loyalty in Social Relationships*		
	A. *Wife to Husband*		
	28. Everlasting Love	Chugtai, A.R.	I. P.
	29. Sita in Asoka Grove	Haldar, A.K.	O. C. Gangoly, Calcutta
	30. Sita in Captivity	Ukil, S.A.	C. A. No. 2
	31. Sita in Asoka Grove	Mozumdar, K.N.	Prabashi Press
	32. Queen Gandhari	Bose, N.L.	C. A.
	B. *Husband to wife*		
	33. Passing of Shah Jehan	Tagore, A.N.	C. A. No. 1 and P.I.A.
	(Also, Possibly, No. 27, above)		
	C. *Son to Parents*		
	34. Sindhu's Filial Piety	De, S.N.	C. A. No. 2

Trait	Title of Picture	Artist	Where obtainable
	D. *Parents (and elder Relatives) to Children especially, Mother to Child*		
	35. The Mother	Banerji, S.N.	C. A.
	36. Mother	Tagore, A.N.	C. A. No. 16.
	37. The Mother	Chugtai, A.R.	C. A. No. 16.
	88. Returning from the Dargah	Chugtai, A.R.	C. A.
	39. The Baby's Complaint Other similar subjects	Devi, Srimati Santa	C. A.
	40. The Motherless Grandson	De. B.C.	C. A. No. 7 and P. I. A.
	41. After the Fair (Father with children)	Devl, Santa	C. A. No. 9
	E. *Brother to Brother*		
	42. Sita and Lakshman in the Forest	*Ukil, S.A.*	C. A. No. 3
	Also, No. 27 above		
	F. *Chela to Guru*		
	43. Ram Das and Sivaji,	Haldar, A.K.	C. A. No. 5
X.	*Preparedness, Watchfulness, Hopefulness*		
	44-46. Savari's Expectancy (3 pictures)	Bose, N.L.	C. A.
XI.	*Patriotism*		
	47. His Heritage	Haldar, A.K.	C. A. No. 2
XII.	*Renunciation*		
	48. Buddha as Mendicant	Dutt, P. B.	C. A. No. 17
	49. Renunciation of Buddha	Gangoli, I. P.	J. P.
	50. Departure of Prince Siddhar-tha	Tagore, A. N.	M. H. B.
XIII.	*Righteous Indignation*		
	51. Valmiki and Krauncha		I. P.
XIV.	*Sympathy and Helpfulness*		
	52. Sympathy	De, B. C.	C. A. No. 9 and P. I. A.
	53. The Water Giver	Bose, N. L.	C. A. No. 15 and P. I. A.
XV.	*Self Dedication*		
	54. Life Eternal	Chugtai, A. R.	C. A. and P.I.A.
XVI.	*Sensitiveness to need of God*		
	55. The Call of the Infinite	Varma. N. P.	C. A. No. 14 and P. I. A.
XVII.	*Sense of Justice*		
	56. The Widow	Kar, S. N.	C. A. No. 1
XVIII.	*Single-mindedness*		
	No. 16 above		
XIX.	*Sense of Supremacy of Spiritual Values*		
	57. Shah Jehan	Ganguly, O. C.	C. A. No. 7
	58. Worship	Bose, N. L.	C. A.
	59. Work and Worship	Gangoly, J. P.	C. A. and P.I.A.
	60. "To Whom shall we make our Offerings?"	Sen, Bireswar	C.A. and P.I.A.
XX.	*Trustfulness*		
No. 40 above.			

It may be of interest to note in passing that the above list of sixty pictures will afford to students an introduction, at least, to the work of most of the outstanding artists of the modern group. It would be outside our present purpose to comment on these artists and their work. Some personal data concerning a number of them is included in the booklet of suggestions to teachers which accompanies the Portfolio of Indian Art to which reference has been made above, practically all of the sixteen pictures assembled in that portfolio being included in the present list. As indicating something of the representative nature of the list here suggested, however, it may be pointed out that it will bring to the attention of students the work—among others—of the following: Abanindranath Tagore, who with E. B. Havell set in motion the Renaissance in Art in Bengal, and is still looked upon as the leader of the whole movement; Nanda Lal Bose, Head of the Art Department at Santiniketan, the germinating centre for much of the new idealism; Asit Haldar, Principal of the Lucknow School of Art; Jamini Prakash Ganguli, late Vice-Principal of the Calcutta School of Art; Sailendra Nath De, Vice-Principal, Jeypore Art School; Abdur Rahman Chugtai, foremost Musalman painter; Sarada Ukil, Delhi; M. V. Dhurandhar, Vice-Principal, School of Art, Bombay; Deviprasad Ray Chudhury, Principal, Government School of Art, Madras; Khsitindranath Majumdar, Indian Society of Oriental Art; Manindrabhusan Gupta, Instructor, Government School of Art, Calcutta.

It has been suggested above that in making use in Christian Schools of the work of artists whose cultural background has been that of traditional Hinduism, it will be well to keep in view, first, the necessity for a *selective* use of such work; and, second, the similar necessity of so *adapting one's method* of presenting and using such pictures as to prevent confused ideas as to ethical values arising in the minds of pupils. On this latter point three suggetions may be offered.

(1) With regard to the *technique* employed by the majority of Indian artists, while it will doubtless be of interest to pupils to note some of the points in which the characteristic techniques of East and West diverge from each other, it will not be necessary with pupils through the High School stage to enter into any exposition of the underlying philosophical grounds for this divergence. It is not necessary to bring into the focus of attention everything in a picture, whether painted by an artist of the East or the West.

(2) Two further suggestions have regard to the *content* of the picture; in the first place, it needs to be recognized that in the narrative type of pictures, particularly, we are dealing with subject matter which is more often than not drawn from mythological and legendary Hindu lore. The picture may, or may not, reflect the precise spirit of the myth or legend. As we have pointed out above, a process of sublimation and idealization is taking place, to which the Indian artist is contributing his due share, as regards the interpretation to be placed upon this ancient lore. Much of it, either in the form of story or picture, we shall not wish to use. That which is used will of course be presented in a realistic spirit as legend, the picture telling us what the legend meant to the artist. While recognizing frankly the impro-

bability or even impossibility of the details of the old story, we may yet gladly appropriate the nugget of truth and beauty which it contains. For instance, in the reconstructed mythology which Nunda Lal Bose has given to us, we have the delightful three-panel picture which he calls "*Savari's Expectancy*". As a young votaress in the forest there had come to Savari the promise that she should some day have the privilege of beholding and entertaining in her hermitage the great Rama. The artist has shown us how this hope controlled henceforth her whole life. Her hermitage was kept in order for the expected guest. A gift according to the season and her years awaited him. And she herself stood in constant eager expectation of his arrival. We cannot look at this picture, after having read Sorley's lines, without having them recalled to us:

> This sanctuary of my soul
> Unwilling I keep white and whole,
> Unlatched and lit, if thou should'st care
> To enter or to tarry there.
>
> With parted lips and outstretched hands,
> And listening ears thy servant stands;
> Call thou early, call thou late,
> To thy great service dedicate.

We have already referred to another painting by the same artist, "The End of the Journey", in which the Pandava brothers with Draupadi, are seen ascending Mount Kailasha. A dog has attached itself to them and accompanies Yudhisthira to the summit where he is met—the legend says—by Indra in his chariot in which he is to be taken to the latter's heaven. It is at this point that the story will have its special appeal, as illustrating in interesting if naive fashion, the principle of *noblesse oblige*. For when Yudhisthira is about to take with him the dog which had followed him so devotedly through so many hardships, the god refuses his permission, saying that heaven would be defiled by the presence there of this, an unclean animal. It is then that Yudhisthira takes his stand for just dealings, even towards a dog, and refuses to enter heaven without this faithful friend. And the tale justifies his attitude for when he has taken this stand the dog is transformed into his true nature and stands forth in heavenly beauty as Dharma itself,—the spirit of Duty.

We might go on with such illustrations of the positive values to be found in some of the legendary lore of India, but these must suffice. In the same realistic spirit, frankly recognising departures from the probable or possible, the artist's interpretation of historical or semi-historical material would be treated.

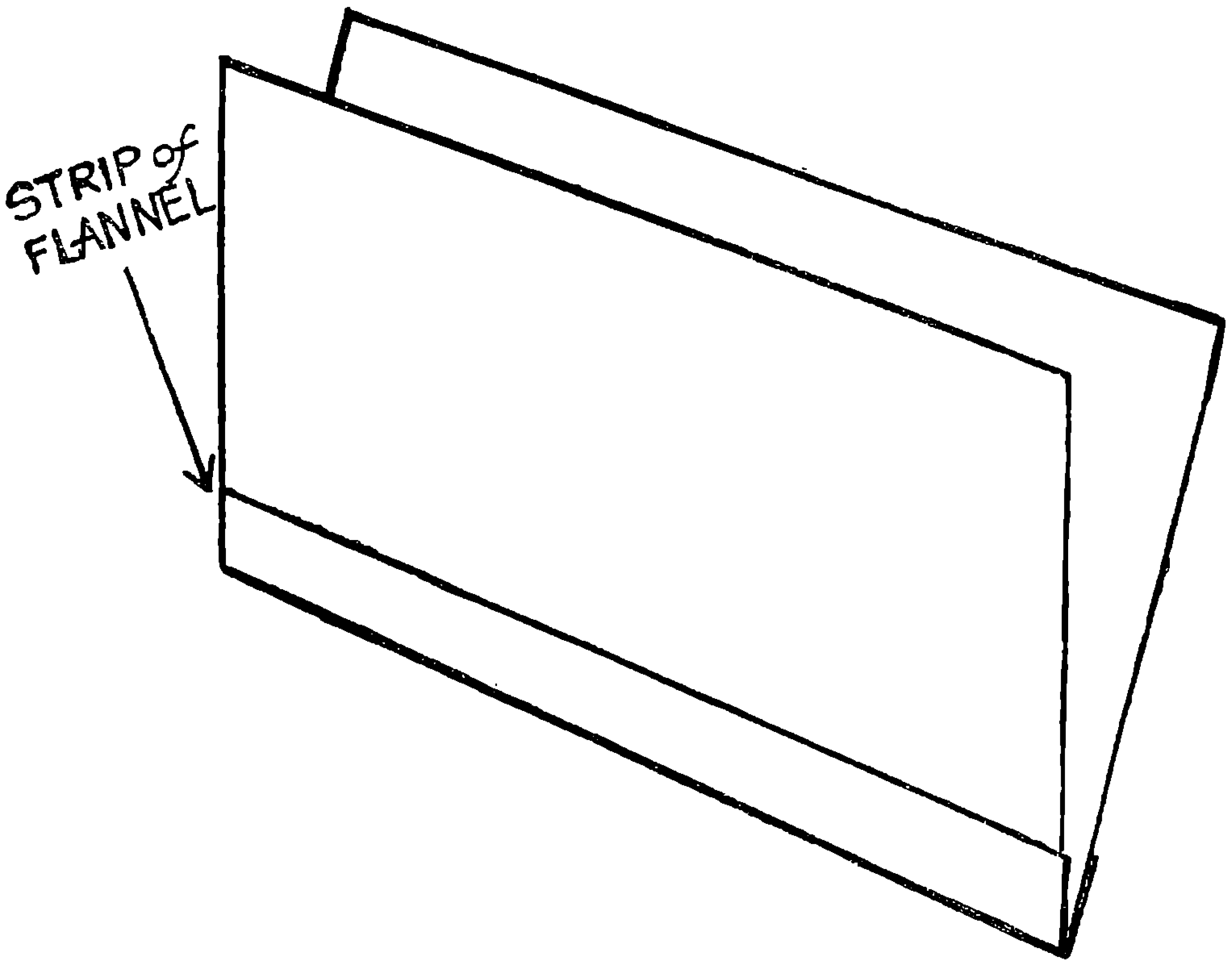
(3) A third suggestion which we would offer is that it may sometimes be necessary to lead people to discriminate between an ideal itself, as expressed in art and the type of conduct expression through which that ideal could find most fitting expression. For an illustration of what is intended by this we may take the picture of "Queen Gandhari", included in this list. The wife of the

blind king, as loyal wife, will allow herself no privilege which her husband does not enjoy. Therefore, as the artist has painted her, she sits blindfolded by her window, while her companion reports to her the happenings outside. From this picture may be gained an ideal of the devotion of a wife to her husband, but it will afford opportunity for discussion as to whether or not the method taken for the carrying out of that ideal is the best possible expression of it.

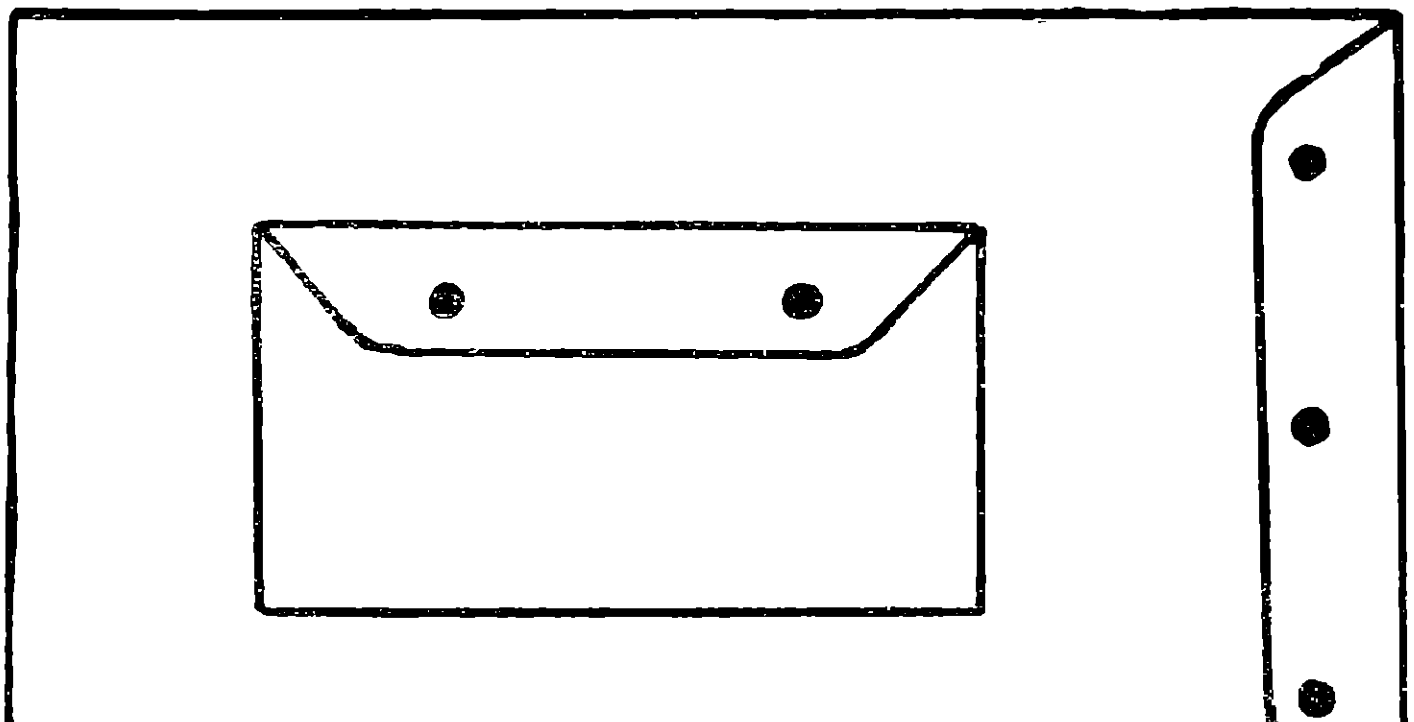
Again, we have the picture of *Valmiki and Krauncha*, in which the Rishi is seen with the dead bird in his arms, its mate flying angrily above the hunter whose arrow has just killed it. We have listed this picture under the trait, Righteous Indignation. The old legend tells us that out of the Rishi's indignation over this act was born the *sloka,* and the Ramayana. Such a picture may be useful not so much as *illustrating* as affording a starting point for a *discussion* of the trait under which it is listed.

It will be apparent from what we have been saying that in the judgment of the writer a larger use could, with advantage, be made of pictures by Indian artists. From an inspection of the list of traits and ideals illustrated in the work of such artists, it will be equally apparent that the help which may be expected from this source has very definite limitations. There is a wide field for the Christian artist who will clothe in imagery congenial to the Indian mind the challenge of Christian idealism.

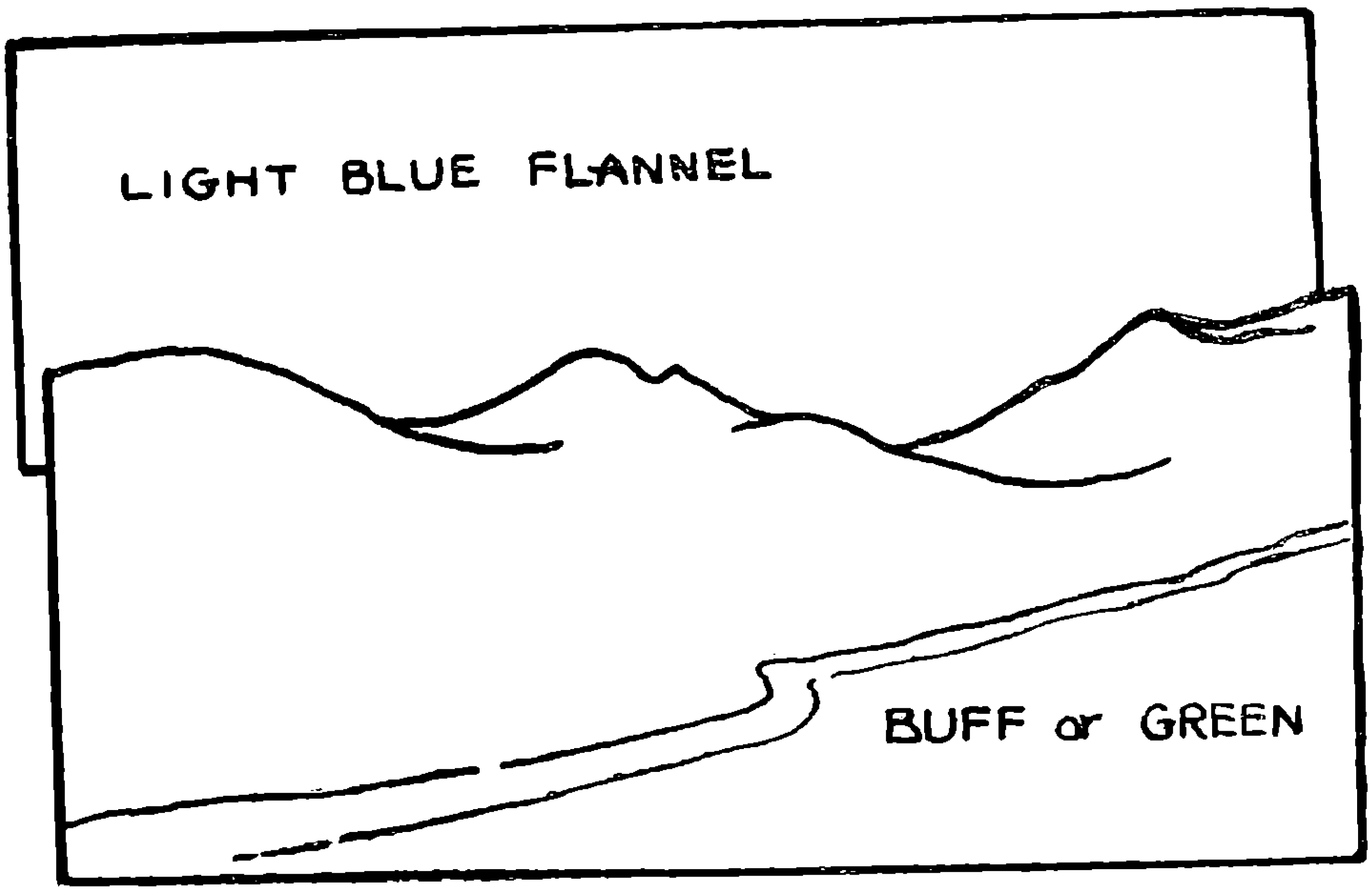
That this idealism is finding expression, even in the works of those who are not designated as "Christian" either by themselves or others, there can be no doubt. It would be difficult to cite, for instance, a more fitting treatment of *forgiveness* than K. N. Mozumdar has given us in his *Forgiveness of Chaitanya,*—the hand pressed to the forehead hiding the wound made by the assailant. Other pictures might be cited showing that the new life surging through India may be expected to express itself, as it is already expressing itself, in artistic as well as other forms of which Christian Schools may increasingly avail themselves.



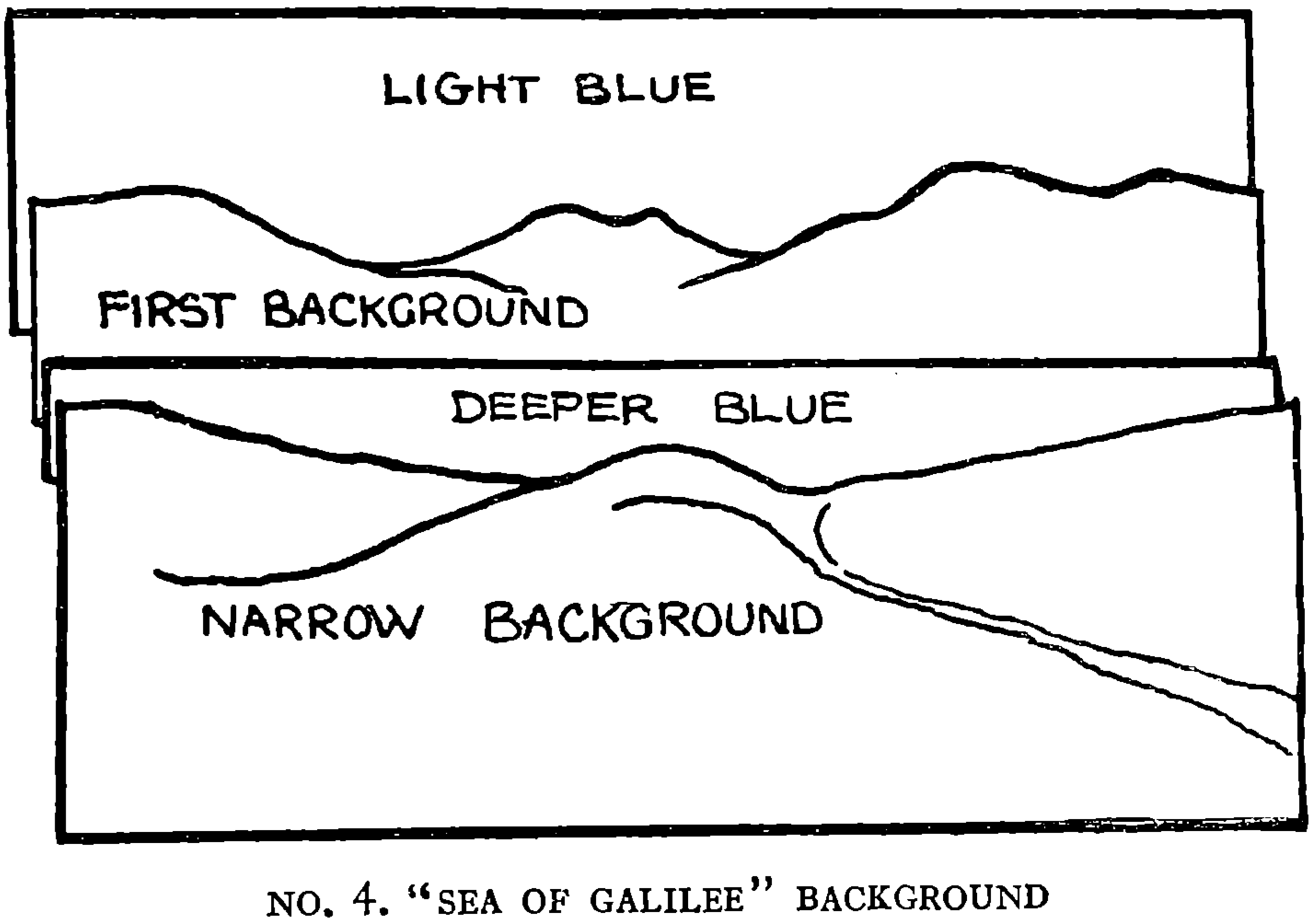
NO. 1. FLANNELGRAPH BOARD



NO. 2. CLOTH CARRYING CASE



NO. 3. FLANNEL BACKGROUND



NO. 4. "SEA OF GALILEE" BACKGROUND

CHAPTER IX

THE FLANNELGRAPH—VALUABLE VISUAL AID

CHRISTENA H. DUERKSEN[1]

"Flannelgraph is not a toy but a God-given tool for a God-given task."
—EUNICE FISCHER, *Consultant, Scripture Press*

FOR a number of years "flannelgraph" has been to me a very satisfying aid in teaching and I am convinced that anyone who will really try it out will find it a real help.

To me, one of the first advantages of the flannelgraph is that it permits action in the story. (Scriptograph, Story-o-graph, Khaddar and Suedograph are other trade names of similar products.) The listeners see the characters move about as the story progresses and they are able to follow step by step.

An advantage of equal importance is that the equipment needed is comparatively inexpensive and much of it can be "home made".

ADVANTAGES

Eunice Fischer claims "Flannelgraph's greatest advantage is the one people are least aware of—its wide variety of uses. Not only can it be used for teaching the lesson, but to teach songs, drill memory work, create missionary interest, explain salvation and doctrinal truths, review previous lessons, play games, chart contests, conduct map studies, and even as a bulletin board during pre-session when posters and missionary letters can be pinned to it. Alert parents will also use it in the home in connection with the family altar —letting the children place a picture or two on the flannelgraph board to illustrate a song, to depict God's provision for us, to show our kindness to others, etc."

A blackboard lesson must be erased no matter how much time has gone into its preparation. But the flannelgraph lesson can be tucked into an envelope until the need for that particular lesson arises again. I have some lessons which I use about once in three years.

EQUIPMENT NEEDED

1. Flannelgraph board and easel.
2. Suitable backgrounds.
3. Story figures or symbols.

FLANNELGRAPH BOARDS

There are many fine commercial boards and easels on the market as a study of the advertisements in any current number of "Child Evangelism" or "Christian Life" and other similar magazines will show. These are light

[1] Mrs. J. R. Duerksen, Janjgir, C.P., of the General Conference Mennonite Mission has been in India since 1926. The mother of three children, she finds time to teach in the Bible School and assist her husband in village evangelism.

in weight and usually fold in order to be easily transported. The easels are collapsible.

For the average village worker the price of these is prohibitive and we must look for something simpler and less expensive.

1. My first "board" had a piece of wool-mixed black flannel stretched firmly over a base made of packing case boards nailed together. A hinged support in the back made it possible to set this up on a table at a slight slant and the weight gave it stability. This board was a yard wide and about twenty-seven inches high.

2. Two pieces of pressed or ply-wood hinged together make a light weight board. This must have some arrangement on the back that will hold the board firmly in an open position.

3. Heavy cardboard, backed with flannel, can be used and will be very light to carry about. To make a hinged board, use a strip of flannel pasted the length of the two pieces as a hinge. This should be pasted on while the two pieces are held together face to face. When open, this hinged piece will pucker but the flannel on the side to be used will lie flat. (Illustration No. 1).

For this light weight board, a carrying case made of stout cloth is a great help. The envelope containing the lesson to be used can be slipped into this together with the board. Or you can have an outside pocket in which lesson materials can be placed. (Illustration No. 2).

4. The simplest plan for village work is a strip of flannel—preferably a yard long—to each corner of which twenty-seven inch long tapes have been sewn. This may be tied to the village school blackboard, a stiff bamboo chattai or to the common village string cot.

When using the cot, set it upon end, tie the flannel to the upper section, lean the bed against a firm base (wall, tree or post) and you are ready to begin. If no convenient support is at hand you can tie the flannel to the bed the long way and set one cot upon another. This works very well when your audience is seated on the ground.

SUITABLE BACKGROUNDS

For the average villager for whom pictures are somewhat of a puzzle, a plain background is often best. Then there is nothing to distract from the characters of the story. A plain, dark background is also best for symbolic lessons or memory work, suggestions for which will be given later.

1. Commercial Backgrounds. Beautifully designed backgrounds are now available, even in India. These are very convenient to have because they save the time it takes to make them. With four scenes—an outdoor scene, a village street, a simple interior and a more elaborate interior—one has a good beginning. For sources of these, see end of article.

2. Coloured Flannel. (Cotton flannelette.)

Many effective backgrounds can be made in sections using different colours

of flannel. A strip of light blue for the sky, buff or medium green for the land section with the upper edge cut irregularly to simulate distant mountains and a bit of shading with black crayon can be very effective. (Illustration No. 3).

By the addition of a straight strip of darker blue at the base of the hills of the first background and an additional line of lower hills to the fore, you have a splendid "Sea of Galilee" background. House, trees, villages, well tops and rocks can be made separately of flannel or paper backed with flannel and placed where suited in each story. White flannelette can be dyed to any colour desired. (Illustration No. 4).

3. Khaddar or unbleached muslin (markin) are being used with increased success. It seems that figures, backed with khaddar adhere well to khaddar background if they are flat. I have found that some of the Suedograph figures do not adhere well to khaddar. Unbleached muslin is giving satisfactory service to many and has the advantage of being available almost anywhere.

HOW TO COLOUR

1. *Wax Crayons.* These are perhaps the simplest means to use in colouring backgrounds. If, when the colours have been applied to the material, the background is covered with a damp cloth and a hot iron passed over the surface the colours melt into the background and become more permanent. To keep the cut edges from fraying, apply a bit of paste or glue to the under-surface edge of the material.

2. *Village Dyes.* With wax crayons very difficult to get we began to search for a cheaper medium. I had heard that village dyes were being used but no one could give me any information as to how to do the colouring. There was nothing left for me but to experiment, which I did by buying some half anna packets of dye. I mixed a very small portion of such a packet with water and began splashing this solution on to the unbleached muslin with a small paint brush. I was delighted for it worked!

USE OF VILLAGE DYE

Choose a simple background design and make a sketch on a piece of paper. When satisfied that you have what you want—be sure to have the foreground free of trees, rocks, and etc., in order to leave room for the figures needed in your story—then transfer this outline to the cloth with pencil. I find that usually it is best to have the horizon in the upper half of the cloth because that leaves you a larger surface for your story action.

Have your basic colours dissolved in separate vessels—small glass dishes are excellent. If you have several brushes it will facilitate matters but if necessary, the work can be done with one brush. Only you must be careful to wash the brush when going from one color to another.

Paint in your sky and water first. Then work on the land section, shading the far-away hills with blue, brown and green and your foreground with tan brown and green. It is more effective if these colours run into each other than

to have them stand out in distinct patches of color. A black crayola or marking pencil used to outline edges or to shade objects adds depth to the design. Study coloured pictures for effect and do not be discouraged if your first attempt does not come up to your expectations.

TELLING THE STORY

There are many types of lessons used and the following are a few suggestions:

1. *The Bible Story.* Simple outline figures, brightly coloured, backed with flannel and put on the board—one by one as the story progresses—hold the interest of even the tiny tots. Sometimes effective figures can be cut from coloured pictures but usually single figures are hard to get. One can trace figures from printed pictures and newspapers and magazines.

Sheets of printed figures, often brilliantly coloured, are now available and are very satisfactory. Some of these are printed on a heavy paper that needs no other backing.

WARNING

Always work out your lessons before hand, studying how best to place the figures. When you have finished a scene, step back and view the effect from the audience's standpoint. You will often want to change the positions of figures to make them look more natural. Be sure to use larger figures in the foreground and smaller ones in the background. Take care not to clutter up your board with too many figures. It will confuse your audience and detract from the truth you are eager to present.

"TEACHING TRUTH" LESSONS

1. I have a number of large, coloured figures of the Christ taken from large picture rolls, which I have used in a number of ways. For example—One day, in a village where the Christians were almost all illiterate and children were just beginning school, I placed a large figure of Christ in the centre of the board. In the upper left hand I placed the word "COME" in large Hindi letters. Opposite and a little lower the word "TAKE". At the bottom of the board I used the word "GO" and at the lower right hand the word "GIVE". The message was based on these words—"Come" to Christ, "Take" salvation, "Go" to others, "Give" the Gospel. The children recognized the words and were able to read them for the older people. As you begin to study, new ideas will crowd in. Sometimes a simple cross placed in the centre of the board will draw the interest to the central theme in your preaching and you can build around that.

2. Memorizing Bible verses or Scripture portions.

(*a*) Bible verse—Heart with an open door, which when folded back reveals a picture of a Bible to illustrate—"Thy Word have I hid in my heart, etc."

(*b*) Use in teaching Scripture portions. Psalm 1.

Verse 1—Two figures walking, two standing and two sitting.
Verse 2—Picture of a Bible or a person reading a Bible.
Verse 3—Picture of a green flourishing tree.
Verse 4—A man winnowing grain.
Verse 5—Family group reading the Bible. (The righteous.)
Verse 6—A heart with Christ in the centre—the end of a righteous walk.

(*c*) Key words: These written in bold letters and backed with flannel make a very effective way of teaching lessons as well as reviewing.

(*d*) Biography: In the study of Paul's life, I had made an emblem or had found a small picture to illustrate each step, as for instance, a boy looking at ships in the harbour as the boy Saul in Tarsus. A picture of a man teaching a boy as his education under Gamaliel and a picture of the tables of stone to illustrate that he was versed in all the law. At the end of the course the children could go to a table, pick up the emblems in proper turn and tell the story of Paul's life in perfect order.

(*e*) "Book Studies": There are a number of excellent studies of whole books of the Bible that make an interesting series of lessons to use with older children as well as younger ones. Of these I have found Mrs. Ranney's the best for my use. See end of article.

3. Maps—made of flannel or khadi.

(*a*) Map of Palestine. Write names of towns and important places on small pieces of paper, back with flannel and let students practice putting them in the right location.

(*b*) Small pictures or emblems can be used to show what took place in the land—a star for Bethlehem, a water pot for Sychar, etc.

4. Object lessons or symbolical lessons.

These lessons are usually a combination of objects, words and pictures. The story of the three crosses on Calvary can be told with new force.

5. Other stories.

Black silhouette figures in simple outline form, placed on a white or light background make a delightful variation to the flannelgraph story. If black paper is not available white figures can be coloured with charcoal and do nicely.

SOURCES OF MATERIALS

1. Evangelical Literature Depot, 11/1 Mission Row, Calcutta.

(*a*) E.L.D. Khaddar Kraft Kut-out No. 1 and No. 2 and No. 3 are outline figures printed on a good quality paper to be colored and mounted. These three sheets have figures for nine stories. A new sheet of figures for the Easter story are ready but are not as well proportioned as the earlier figures.

(*b*) Child Evangelism Fellowship Material by Irene B. Ranney. These are very good and a special advantage is that with each set of pictures there is also a volume of lessons. The following courses are available—Genesis in two volumes; Egypt to Canaan; Joshua, Judges and Ruth; The Life of David; Gospel of Luke; Gospel of John; Acts of the Apostles; Bible Lessons on Great Hymns.

(*c*) Suede-graphs in twenty or more stories. These figures come brightly colored and are printed on a suede-backed paper that needs no flannel. These do not stick well on Khadi background. They do stick very well on flannel and on the smoother unbleached muslin.

(*d*) Story-o-graphs. These come printed on sheets 19″ by 25″ and have larger figures, well shaded. They cover all the main Bible stories but do not have quite as much action as the Suede-graph.

(*e*) This Literature Depot also tries to keep Scenery sets on hand and recently advertised the arrival of hand painted sets from U.S.A.

Write for their list of supplies and choose what you need.

2. India Sunday School Union, Coonoor, Nilgiris, South India.

(*a*) They make up and supply flannelgraph boards at a reasonable price.

(*b*) Flannelgraph handbooks from England with colored pictures, each book representing about four stories.

They will be glad to send you a list of what they have in stock.

3. Mission Press, Jubbulpore, C.P.

Have from time to time advertised sheets of figures to illustrate Indian stories.

4. Christian Book and Tract Society, 18 Clive Road, Allahabad, 1.

Carry some supplies along this line. Contact them for fuller information.

5. Christian Literature Society, Post Box 501, Park Town, Madras have produced a Life of Christ Kit, seventy-seven figures on ten sheets for the Audio-visual Aids Committee of the National Christian Council, produced in cooperation with the India Sunday School Union, the Kit sells for only Rs. 2.

CHAPTER X

35 MM. PROJECTORS, SLIDES AND FILM STRIPS

CONRAD P. HEINS[1]

IF you want to win friends and influence people by audio-visual methods one of your most useful units of equipment will be a good 2 by 2 inch projector with a comprehensive selection of 35 mm. slides and filmstrips. It is the purpose of this chapter to discuss some of the techniques for the effective use of this type of equipment and to give a review of representative equipment and materials in the field.

A NEW PROJECTOR

Let us suppose that you have just acquired a 35 mm. projector for use in your school or district. How can you make the best use of it?

First familiarise yourself thoroughly with the materials available in the field. Get catalogues from the National Christian Council Film Libraries, from the American and British Information Services, and from your Provincial Education Department if you are in school work. Get in touch with your denominational Audio-visual Aids Secretary for additional information. Subscribe to the National Christian Council "Audio-visual News" and other publications in this area. (Various types of strips and slides are mentioned in the second half of this chapter.) Get catalogues from the producers of such materials as interest you and plan to purchase some supplies for yourself. It will be well to have available in your own school or district centre those strips and slides that are most often needed. If you are in a city where there are others interested in the use of Audio-visual aids you might help to organize an Audio-visual Aids Association, similar to the one that is functioning in Bangalore. (See p. 70.) This will make a larger supply of materials easily available at a lower cost to each member.

The second step will be to plan your programme in the light of the school curriculum or evangelistic plans so as to make the best possible use of the materials available. All too often the projector is used as an extra or an afterthought in the educational or evangelistic programme. Even when an effort is made to use projected pictures conscientiously, unless plans are made in advance the needed strip or slides are likely to be missing when they are wanted. This haphazard and largely ineffective use of the projector can be avoided by careful planning. In the school if the Principal is too busy to give sufficient time to this, an interested teacher should be put in charge. He should consult each teacher, explaining what materials are available in his or her field, and decide what strips will be most useful and when they will be needed. Then orders can be placed with the film libraries in plenty of time to assure getting the films. In addition to rentals, some funds should be

[1] Rev. Conrad P. Heins, B.A., B.D., M.A., Gulbarga, Deccan, is the Associate Secretary for Audio-Visual Aids of the Methodist Church in Southern Asia.

provided so that the Audio-Visual Aids director of the school or district may purchase frequently used strips and slides for use whenever needed.

EFFECTIVE USE OF THE MATERIALS

1. *Physical Set-up*: Detailed directions for the arrangement of equipment, seating, etc., will be given in other chapters, so they will not be repeated here. Sufficient to say that the room should be adequately darkened and at the same time sufficiently ventilated to keep the audience awake. Where possible, in schools, it is well to have one room equipped for projection purposes so that it may be used by any class whenever needed.

2. *Techniques for use*: In using strips and slides it is important to remember that they, like other audio-visual aids, are helps and not substitutes for oral teaching. Most of the disappointments that may come in the use of this type of materials arise out of the fact that they are expected to do the teacher's job. As Walter W. Bennett, an authority on the use of film-strips says:

"The film-strip is, for many teachers, as yet a new teaching tool. It cannot generally be used in the same way that motion pictures have been used. If instruction by its use is to be effective the film-strip needs guided discussion during its presentation. It cannot be treated as a learning capsule. A film-strip lesson requires more, not less, dynamic leadership from the teacher."[1]

The film-strip won't do the teacher's job, but it can make the teaching much more effective.

3. *Preparation*: Preparation for the use of projected pictures should be along two lines. The teacher should prepare himself by becoming so familiar with the strip or slides that he knows the significance of each frame and just what it can contribute to the lesson. Then the commentary should be so planned as to lead the class to get the most out of each picture.

The students should be prepared by preliminary study of the subject, or by interest-arousing questions or discussion, so that when the pictures are shown they will be a natural climax to the lesson.

4. *Motivation and Participation*: Studies by the Motion Picture Research groups at Yale University have shown that if students are given some motivation for learning from the films or strips shown, and if they then participate in discussion, the learning from a given projection is increased by as much as 75%.[2]

The motivation may take the form of questions to be answered by the film-strip, or by having the students look for practical applications along certain lines. Participation questions are asked at the conclusion of each unit or section of the film or strip to make the students think about what they have seen. Then a brief discussion may be used to bring out the right answers.

[1] "Techniques in Utilizing Film Strips"—Audio-Visual Guide, May 1949.

[2] *The Educational Screen*—May 1947, p. 256.

5. *Repetition*: Some strips have key points repeated in the strip itself. If this is not the case it is well to reshow the entire strip, or at least portions of it, after discussion. This will bring out things not seen on the first showing and will drive the lesson home.

6. *Testing*: As a means of both motivation and further learning a short objective test should be given after the use of each film-strip or slide unit. This will enable the teacher to quickly check on the effectiveness of the lesson and show what needs to be retaught.

RELIGIOUS EDUCATION AND EVANGELISM

In the case of religious education in schools and churches much the same procedure should be used as is suggested above. The curriculum should be reviewed and suitable slides and strips ordered for use when they will be most effective. In the field of Bible Study, in addition to film-strips, the Churchcraft colour slide series can be used to great advantage.

Rural Evangelism: The 35 mm. projector can be used very effectively in rural education and evangelism. Used alone it makes a fine tool for teaching smaller groups in the villages, and in conjunction with a small public address system it is excellent for reaching groups of up to two or three hundred people.

In general, projected still pictures are easier for village people to grasp than movies. And they have the advantage of staying put long enough to be thoroughly explained. The equipment is light and simple to operate so that District leaders with little mechanical training can successfully use it.

The principal technical problem is providing of electric power. This may be solved by using a storage battery and a 6 volt, 50 watt bulb, or by using a small generator (about 300 watts). A good fully charged battery will operate a Viewlex with a 50 watt lamp for 10 or 12 hours without recharging. Small battery chargers may be used for recharging if electric power is available at the home base. Or, if a Jeep or other motor car is used for touring, the battery from it may be used for the projector. If the car generator is working well it will keep the battery charged on moderate daytime driving (about 40 minutes to an hour of driving for each hour of use with the projector).

If a loud-speaker unit is used, or if pictures are to be shown to larger crowds, the use of a small generator with a 150 watt lamp is advised.

In showing to village people the simpler the pictures you use the better. Simplified cartoon types of strips and slides will be better understood and more appreciated than the beautiful but often confusing, Kodachromes of the Churchcraft series. In the field of Health and Sanitation the elementary drawings of the Jet-men series get across perhaps better than any other sort of illustrations. However, if they are wisely selected, many other strips and slides on the Bible, as well as other subjects, can be effectively used.

One fallacy that should, by all means, be overcome, is the idea that all projected pictures are for entertainment. The pictures will draw the crowds, but they should never be used just for that. They should be an integral part of the presentation of the message. As in the case of teachers in the schools, the person who is to use audio-visual aids in the rural work must know his

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materials thoroughly and make the most of them by careful planning and the use of a dynamic commentary.

EQUIPMENT AND MATERIALS

1. PROJECTORS

Good 35 mm. Slide and Film-strip projectors are to be had from both U.S.A. and England. Some of the leading makes are as follows:

1. *The S.V.E. Model AAA*, a tripurpose projector for 2 by 2 slides and single or double frame film strips. Manufactured by the Society for Visual Education, 100 East Ohio Street, Chicago 11, Ill., U.S.A.

This is one of the oldest and still one of the best of this type of projector. It employs a 300 watt type T prefocus lamp, obtainable for either 115 or 230 volt. A six volt, 100 watt lamp for use with a storage battery is also available. This gives a good light, but the drain on the battery is rather heavy. It has an automatic slide changer and automatic rewind and various other special features. The cost is about $75 in U.S.A. A discount is allowed to Mission Boards.

This projector is recommended for use in school halls or other large rooms where the source of electricity is the line current. A larger model with a blower and a 1000 watt lamp is available for larger auditoriums.

2. *Viewlex, Models AP-2 and AP-3*, for 2 by 2 slides and single frame film strips. Made by the Viewlex Corporation, 3501 Queens Blvd., Long Island City, New York. Cost about $60. Discount allowed to Mission Boards.

This projector features an aspheric lens system which increases the efficiency of the illumination. It is claimed that a standard 150 watt in this projector will give the equivalent of 270 watts of illumination on the screen as compared with other projectors. Tests made by the writer seem to confirm this claim.

In this projector the conversion from film strips to slides is very simple and can be quickly accomplished. There is no provision for the showing of double-frame strips, but an adapter can be easily made to show them in place of the slides. For use with a storage battery a 6 volt, 50 watt lamp is used. This puts about the same drain on a battery as a pair of bright headlights. The Viewlex is recommended as a good all-round projector for both school and rural work.

3. *Argus*: Made by the Argus Camera Company.

There are two models of this projector, one similar to the S.V.E. and a smaller one along the lines of the Viewlex. The larger model has a built-in film-strip attachment, the smaller model requires an adapter and is not so smooth-working as the Viewlex. These projectors are handled by National Educational and Information Films, Ltd., National House, Tullock Road, Bombay, and by various other supply houses in India. They may, therefore, be more readily obtained than some of the other makes which are not handled commercially in India.

4. Other American projectors of good reputation are as follows:

Ampro Model 30D—2 by 2 slides and single frame film-strips. 300 watt lamp. Manufactured by the Ampro Corporation, Chicago 18, Ill., U.S.A.

DeVry, Similar to the Ampro. Made by the DeVry Corporation, Ill., Armitage Ave., Chicago 14, U.S.A.

Three D—Film strips and 2 by 2 slides. Made by the Thrte Dimensional Co., 4555 W. Addison St., Chicago, Ill., U.S.A.

5. English Made Projectors:

Adiescope—Shows slides and single and double-frame strips. Has rotating head, 250 watt lamp. Cost, with case, £33-10.

Aldis A 2.—Same as above, but with slide carrier extra. With Case £30.

*Pullin P.P.*1—Single-frame strips, Slide carrier at extra cost. 250 watt lamp and special condenser lens system. Cost about 35 Pounds. This projector has been used by Schools in India and found very satisfactory.

SOUND FILM COMBINATIONS

Some projectors combined with record players are available for using strips which are accompanied by a recorded commentary. These are of limited usefulness in India at present, but as more of the combined strip and record units become available for education these machines will be of value in schools and colleges.

Leading makes are:

Illustravox—Made by Magnavox, Dept. V.R.I., Ft. Wayne Indiana, U.S.A.

Explainette—Made by Operadio, Dept. V.R. 18, St. Charles, Ill., U.S.A.

2. FILM-STRIPS AND SLIDES

Film strips may be had in two sizes. The Single-frame strip has pictures about ¾" by 1" (the size of the single picture in commercial cinema films). The Double-frame is twice as large (the size of a standard 35 mm. Kodachrome transparency). Practically all commercial film strips come in the single-frame size. Positive prints from standard 35 mm. camera negatives are double frame size. It is well to have a projector that will show both sizes as well as the 2 by 2 slides.

EDUCATIONAL FILM-STRIPS

Strips are now being made to cover practically all phases of education. The average cost in America is $2.00 to $2.50. Catalogues covering strips on many subjects made by various producers can be had from the Society for Visual Education, 100 E. Ohio St., Chicago, Ill., U.S.A., and from Stanley Bomar, 2067 Broadway, New York 23, N.Y., U.S.A. The names of other general suppliers may be found in the Visual Aids periodicals.

Some leading film strip producers who will supply their own catalogues are as follows:

1. *Jam Handy Organization,* 2821 E. Grand Blvd., Detroit 11, Michigan, U.S.A. Their strips cover science and other educational fields and are generally excellent.
2. *Teaching Films Inc.,* 2 West 20th St., New York, N.Y., U.S.A. History, Ancient Greece and Egypt, Food, Clothing, Shelter, etc.
3. *Visual Sciences Inc.,* 599 A. V. Suffern, New York, U.S.A. Very good strips on all fields of Science.
4. *Popular Science Publishing Co.,* 355 Fourth Ave., New York 10, New York, U.S.A. Science, Transportation, Social Studies.
5. *Still Film Inc.,* 8443 Melrose Ave., Hollywood 46, Calif., U.S.A. Strips in natural colour.
6. *Telefilm Corp.,* 12 E. 44th St., New York 17, N.Y., U.S.A. Strips on China with recorded commentary or Manual. Also other subjects.

SUPPLIERS IN INDIA

Some educational and photograhic supply houses in India have film strips for sale. Two suppliers in Bombay are:

National Educational and Information Films Ltd., National House, Tulloch Road, Bombay.

Ama & Co., Hornby Road, Bombay.

Both these houses list a good number of strips on various educational subjects. The cost runs between Rs. 12 and Rs. 20 per strip. Ama & Co. have a fair number of strips on hand for immediate purchase. N.E. & I.F. Ltd. take orders and supply when received from abroad.

Recently the National Christian Council Audio-Visual Aid Committee has produced some strips on health and sanitation. These are put out under the title 'India Village Service'. Seven strips based on the 'Jet Men Charts' have been made. For information write to Dr. D. F. Ebright, 37 Cantonment Road, Lucknow, U.P.

EDUCATIONAL SLIDES

There are some 2 by 2 slides produced for educational purposes, especially in Art and Geography, but in general this field is dominated by the film strips. The Society for Visual Education puts out "Visualized Units in Colour"—lecture or discussion units illustrated by from 10 to 15 colour slides. These cover many subjects and are very attractive, but the cost is a bit high. Each slide is 50 cents.

RELIGIOUS FILM-STRIPS

A great many film strips on the Bible and other religious subjects have been produced. Not all are suitable for use in India. The following is a résumé of some of the materials available from U.S.A. and England:

1. *Cathedral Film Inc.,* 1970 N. Cahuenga Blvd., Hollywood 28, Calif., U.S.A. These strips are based on the various Biblical motion pictures produced by this firm. The strips in general are technically very

good and efficiently simple for village audiences to follow if adequately explained. In most of these strips some imaginative material has been introduced to fill out the Biblical incident. This is usually helpful, but in some cases it overshadows the Scriptural story. A number of stories, from both the Old and New Testaments have been filmed. The cost of these strips is $2.50 each.

2. *S.V.E.*—The Society for Visual Education has produced many Biblical film strips. A great many of them represent pioneer efforts in this field and are not very satisfactory. However, the S.V.E. is constantly putting out new materials and better strips on the Bible and other religious subjects will no doubt be forthcoming. This firm also handles the strip of others, so their catalogue should be carefully studied.

3. *Film Fax Productions,* 995 A. First Ave., New York 22, N.Y., U.S.A.

4. *Standard Publishing Co.*, 20 E. Central Parkway, Cincinnati, Ohio, U.S.A. Colour strips on Bible stories and themes. $3.00 each.

5. *Visual Education Ltd.*, 9 Upper Berkley St., Portman Square, London W. 1. Pilgrim's Progress (6 strips) and other religious and educational subjects.

General catalogues in this field can be had from:

The Religious Film Association, 45 Astor Place, New York 3, N.Y., U.S.A.

Stanley Bomar, 2067 Broadway, New York. 23, N.Y.

Church Film Service, 2595 Manderson St., Omaha 11, Nebraska, U.S.A.

Also consult Audio-Visual Aids publications and denominational boards.

RELIGIOUS SLIDES

Many excellent colour slides on the Bible and religious themes are to be had. These fall into three categories:

1. Copies of religious paintings, usually one picture for any given incident or story.

These pictures, especially when done by real artists, are of real value in setting the mood or developing a theme in a worship service. A judiciously selected collection of such pictures may be used to portray the life of Jesus. The greatest drawback for this type of material is that the varying conception of Jesus and His disciples, and the different types of background and costumes, make for confusion in the mind of an unsophisticated audience. Also, since there is usually only one picture to an incident such pictures are not very helpful for detailed Bible study.

2. Series of pictures on various incidents of the Life of Christ or other Biblical subjects all by the same artist. Specially recommended are those by Elsie Anna Wood who is herself a missionary in the Middle East. Her pictures show authentic Palestinian characters, scenes and costumes. Series by Harold Copping and several other artists are also of value. Such series are

very good for depicting the life of Christ, or for generalized study of the Bible, but since there is usually one picture to an incident they suffer the same limitations as other paintings when it comes to detailed study.

3. Series of slides made from kodachrome photographs of living actors depicting various biblical incidents. The best known of these slide sets are those produced by the Churchcraft Co., 3312 Lindel Blvd., St. Louis 3, Missouri, U.S.A. There are from 3 to 20 slides covering the various incidents in the life of Jesus. The colours are rich and the portrayal is generally good. These are fine for educated audiences and are recommended for use in central churches and schools. However, many of the slides will seem rather confused and crowded to a village man, and simpler materials are recommended for rural use where available.

4. Recently several sets of New Testament slides have been produced in India. At Jubbulpore "The Good Samaritan" and "The Prodigal Son" have been filmed, and at Pasumalai slides on various incidents in the life of Christ have been made. Both sets, when available, may be obtained through the National Christian Council Audio-Visual Aids Department. The Gospel Literature Society, P.O. Box 65, Bombay, have an audio-visual service including Gospel slides and film-strips made in India.

3. RENTAL LIBRARIES

A number of film-strips and slide sets in both the Educational and Religious field may be had from the National Christian Council Film Libraries. These are as follows:

1. C/o H. R. Ferger, Agricultural Institute, P.O., Allahabad District.
2. C/o T.B. Sanatorium, Arogyavaram, Chittoor District, S.I.

Film-strips are also available for free use from the United States and British Information Services at Delhi, Bombay, Madras and Calcutta (and some other major cities). Many provincial Education Departments have rental libraries of films and strips and slides that may be had for use in the schools.

In larger centres where there are several schools interested in using projectors an Audio-Visual Association may be formed. The plan used in Bangalore several years ago has proved very successful. Seven local schools joined together to form the Association. Each student in the co-operating schools was charged One Rupee admission fee and One Rupee (in some cases Eight Annas) per year as dues. Additional funds to get started were raised through concerts, cinema shows, etc. The Association bought seven Pullen Film-Strip projectors and a selection of film-strips. The projectors are loaned out free of charge to the member schools, and each school may draw upon the central library for strips as needed. Each year a good number of new strips is added to the library.

4. MAKING YOUR OWN

Often the strips and slides available from abroad are not fully satisfactory for Indian use, and it is desirable to have strips made from pictures taken here. (See Chapter 30: "How to Make 35 mm. Film-Slides"—W. S. Durham).

5. ADDITIONAL EQUIPMENT

1. *Projection Screens*: For general use a square, mat surface, white screen is recommended. One with its own tripod is convenient, though for use out-of-doors this will probably have to be braced with poles at the sides.

In long halls a beaded screen, which gives a more brilliant image within a rather narrow angle, may be used to advantage. But beaded screens are easily damaged and are subject to fungus growths, so are not recommended for village use. A five-foot screen is quite sufficient for audiences of up to three or four hundred. For larger groups a six- or eight-foot screen should be used.

2. *Public Address System*: A modest amplifier unit is a great advantage in reaching larger groups out-of-doors. By using a converter (6 volt D.C. to 110 volt A.C.) this equipment can be operated on a storage battery along with the projector. However, this puts a rather heavy drain on the battery and the use of a small generator (about 300 watts) is recommended where available. Both microphone and phono-pickup should have dynamic rather than crystal rectifiers as the crystals do not stand up under tropical conditions.

6. FURTHER READING

1. *Books*: McKowan and Roberts, "Audio-visual Aids to Instruction". Available from Higginbothams, Madras.

Hoban, Hoban and Zizman, "Visualizing the Curriculum". Dryden Press, Inc., New York, U.S.A.

2. *Periodicals*:

Audio-Visual Guide, published monthly by Educational and Recreational Guides, 172 Renner Ave., New York 8, N.J., U.S.A.

Educational Screen, Publication Office—Pontiac, Ill., U.S.A.

Visual Review: An annual published by the Society for Visual Education, Inc., 100 E. Ohio St., Chicago 11, Ill., U.S.A.

CHAPTER XI

AND NOW SOUND

DONALD F. EBRIGHT[1]

SOUND, one of the vital channels of communication today, with the assistance of that twentieth century child, electronics, can now be heard around the world. No longer is man's voice restricted for it may be heard everywhere and preserved for ages to come on wire, tape or disc.

No longer is the church's use of sound limited to the Pastor's tongue, the peal of the village-cast bell or the Sunday anthem of the choir. Using radio, bell tower amplifiers, public address systems, hearing aids, turntables, recording machines and transcriptions the church can publish glad tidings and use the greatest music of all the ages.

RECORDINGS

Apart from the human voice the recording is perhaps the oldest sound aid most commonly used in church and school. At first used in music appreciation it has come to play an increasingly important role in drama, speech, social sciences, and religious education. As we consider the church's use of sound, recordings and amplification we will see that these tools now touch all phases of organized parish life.

There are two types of recordings in current use in India: (1) the ordinary phonograph record which rotates at a speed of seventy-eight revolutions per minute (hereafter referred to as r.p.m.); (2) and the transcription which rotates at thirty-three and a third r.p.m. Phonograph records usually come in 10″ and 12″ sizes, while the standard transcription is 16″.

UTILIZATION

Records are also "Aids" and will not replace teachers, preachers or District workers. But they serve many uses. In preparing for their use one must have a turntable in connection with a PA system or Radio or the amplifier section of a Sound Projector, unless you are using the handwound acustical phonograph. One-playing and permanent-point needles may be purchased. The one-playing type should be changed after each recording. When using "home made" recordings special "Shadowgraphed" needles must be used. A permanent-type needle should never be removed and put back because it wears the recording when it is replaced in a different position. The tone arm must not be heavy enough to cause the needle to cut the record. If too heavy it may be counterbalanced with a weight at the end opposite the needle chuck. One to one and one-half ounce pressure is correct.

[1] Rev. Donald F. Ebright, B.A., B.D., M.A., Ph.D., 37 Cantonment Road, Lucknow, U.P., is loaned by the Methodist Church in Southern Asia to be the Secretary of the Audio-Visual Aids Committee of the N.C.C.

It should be pointed out that there is now considerable commercial rivalry betwen the three speeds and variant record types in the United States of America. Columbia introduced a new "long playing" 12″ record which by the use of a new speed, 33 1-3 r.p.m., and new grooving, nearly 300 to the inch, provided twenty-three minutes of playing on one record. R.C.A. met this by introducing a radically new 7″ record, with an inch and a half hole in the center of the record, which operates at the new speed of 45 r.p.m. Today when you buy records you must consider three speeds: 33⅓, 45, and 78 r.p.m. Turntables are now available to operate at these three speeds, with special cartridges and needles for the old conventional widegroove cutting and the new narrow-groove cutting of a Columbia 1950 long playing record.

RECORDING MACHINES

Recording machines are of three types: (1) disc recorders, (2) tape recorders, and (3) wire recorders. All three are relatively easy to operate and require no more maintenance than a radio.

DISC RECORDER

The disc recorder is still the standard instrument because of its fidelity and the fact that no rewinding is necessary for repeated playings. However the cheaper instruments do not produce recordings that compare with reproduction in commercial studios. But with a Presto, Wilcox-Gay or Radiotone Recorder, blank discs, a microphone and a matching turntable, satisfactory recordings may be produced by anyone who will put in as much time and practice as is needed to master the operation of a 16 mm. sound projector.

The recorder works on the principle of engraving a groove in soft lacquer on a paper or metal base record of 10, 12, or 16 inches in diameter; and either 78, or 33⅓, r.p.m.

TAPE RECORDER

There are many makes of tape recorders on the market using spools of paper or plastic tape the size of 8 mm. movie films on which is a solution of iron sulfide solution that receives a magnetic impulse as it passes over the recording head. The recording is instantaneous and the tape may be played immediately after rewinding. The recording may be erased and used repeatedly for new recordings or may be preserved indefinitely. Both recorder and play-back are combined in one instrument.

THE WIRE RECORDER

Many wire recorders are also on the market which work on the same principle as tape but instead of a paper tape base these machines use a high carbon steel wire 4/1000 of an inch in diameter. Programmes of from 15 minutes to three hours may be recorded on these machines depending on the size of the spool. There is no standardized speed for wire recorders yet.

USES OF RECORDERS

Recorders will serve a number of important purposes in school: (1) story telling for young children, (2) to make the boys and girls aware of social problems through dramatization, (3) to give students a personal acquaintance with great historical characters, (4) to teach music appreciation, (5) to teach pronunciation of a foreign language, (6) to teach the correct use of English, (7) to stimulate language expression, and (8) to furnish rhythm for physical educational classes.

Turning to the church we find many uses: (1) Recording sermons, (2) preserving sermon ideas, (3) preaching to shut-ins, (4) sending prepared services to remote villages, (5) recording historic events, (6) recording important meetings of synod, session or official board, (7) counselling interviews, (8) preserving outstanding radio programmes, (9) recording the message of leading church leaders in great conferences, (10) preserving the wedding service for young couples, (11) providing background music for religious programmes, (12) and sending reports to Home Churches. The tremendous use of any of the three types of recorders fully justifies their addition to one's Audio-Visual equipment.

VILLAGE USE

Experience has demonstrated beyond a doubt that even for moderate sized groups out-of-doors some system of loud speaker is a great advantage. It has the effect of increasing the size of your group. Sing a few songs or play a few records over a public address system and watch the people join your group. To begin with they may not be in line of vision with your pictures, but they can be reached behind walls and inside houses by sound amplification. Equally important if not more so is the effect a well heard voice has on the order and decorum of the meeting. Rev. R. G. Korteling writes: "I have seldom had any disturbance in out-of-door meetings where people can see easily and hear well". In the third place speaking through a microphone saves the voice of the worker. In fact not so many people are needed to put on an excellent programme when a good speaker is used. One projectionist and one commentator can do what a half a dozen without a public address system could not do. If as we have been trying to say pictures help the audience to see, it is equally true that pictures without a proper commentary clearly heard lose half their value. The National Christian Council Committee on Audio-Visual Aids is hoping before long to produce a series of carefully and skilfully executed gramophone records and transcriptions. With these it should be possible to put on for thousands of people to enjoy the best of *kalakshepams, bhajans* and *ghazals.* With these the quality of our singing could be improved. With these we can publish glad tidings.

The use of sound to create mood and set the frame for worship is not new in the church. However with the instruments available today a much wider and more effective use can be made of music and voice. The church must develop consecrated talent in all the communication arts to use the modern Mass Media Communication and give its message in the forms heard in this day. The press, radio, motion picture, television and telecasting will

set the world's mood for tomorrow. Will the church with its imperishable message make itself heard?

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University of Chicago Round Table. University of Chicago, Chicago.

CHAPTER XII

USING VERNACULAR COMMENTARY WITH ENGLISH FILMS

LEONARD A. CRAIN[1]

IT is obvious to all who work with movies in India or Burma that the American or English-produced movie, with dialogue in English, is not ideal as it stands because many of the people who see it can't understand a word of it. This was brought very vividly home to our department a few weeks ago when we received one of the Castle Films from America, with commentary in Spanish instead of English! I realized more vividly than ever before the bewilderment of the Burman or Madrasi or Punjabi who watches the figures float across the screen, while an unintelligible chatter in English comes from the loud-speaker.

There are several possible ways to help the audience to understand:

1. A short synopsis of the film beforehand, in the language native to the audience. We are inclined to think that this may be desirable, in addition to the commentary given in the course of the film.

2. "Sub-titles" may be made on film-strip or slides, and run above or below the picture on the screen. This method is used commercially in the movie theatres in China. It has however two very great disadvantages: it distracts the attention from the picture, and for many of the people in the audience it is no help as a large percentage are either illiterate or read very slowly.

3. Commentary in the vernacular may be given, either extempore, or from a prepared script, as the picture proceeds. If the projector has a microphone input jack, the microphone should be used as the live voice of a speaker giving the commentary is too much of a contrast (usually much weaker) than the sound from the loud-speaker.

For the past year and a half we have been experimenting with the use of the third method in various Burma languages. We were fortunate in that for some months after we got under way, we had only two religious films, and we concentrated our efforts on presenting them in the most effective way possible. We feel that we have made significant progress in this work, and present the following outline of our procedure in the hope that it may be of service to others.

PREPARATION OF COMMENTARY

To begin with, we are convinced that the hours of work put in to prepare a careful commentary with cue sheets are amply repaid. There is simply no comparison between the effectiveness of a film presented with adequate,

[1] Rev. Leonard A. Crain, B.D., Rangoon, Burma, American Baptist Mission, is head of the Audio-Visual Aid Department of his Mission.

smoothly running commentary, and the same film presented with only a scattered, extempore commentary. We've tried both!

What sort of commentary? It is necessary first to decide the type of commentary to be used with the particular film. Is it to be merely a brief statement of what is coming next, interpolated where possible in musical interludes? Or a complete running commentary with the English cut out altogether? Or a transcript of part of the dialogue, translated into the vernacular, with part of the English left in? (We found in the film on "The Home 2,000 Years Ago" that it was best simply to switch off the sound tract and give a translation of the English commentary. In "The First Easter" we used a brief statement in Burmese or Karen interpolated at a musical interlude, in about 20 places through the film, keeping the English dialogue practically intact. In "The Saviour is Born" because the English dialogue seemed to us distinctly mediocre, we have cut practically all of it, using Burmese commentary in its place.)

Getting the sound track on paper. The first step is to get down in writing all that is on the film: dialogue, indication of pauses, musical interludes, etc., if possible with an indication of the length of such pauses and interludes. This can be done either by having a stenographic transcript made as the film is run, or by setting a typewriter by the projector and running a few feet, then switching off while the typist catches up. The second probably is quicker in the end, as a stenographer usually needs two or three runthroughs to get the words all down.

Writing the commentary. If (as with "The Home 2,000 Years Ago") the commentary is to be simply a translation of the original, that is easy.

If, however, it is desired to interpolate the commentary into the English dialogue, this is a more complicated matter and requires careful study. It will depend on the setup of the film. "The First Easter" contains English dialogue spoken with dignity and feeling, by actors with fine speaking voices, and it would be a pity for those who understand English to lose the *feeling* of the drama through their words. That particular picture has numerous interludes which we timed, and then wrote commentary to fit, so that the commentary is spoken above the musical background (which is faded down with the volume control).

In this picture, the commentary at each point was a concise statement of the action to take place just following. This was written in English by one of the leading pastors of Rangoon (an Indian), and then translated into four Burma languages, and into Tamil.

PREPARING SCRIPT BOOKS

The presentation to an audience will be vastly easier if script books are carefully made up, a copy of each for the commentator and the machine operator.

We have adopted the procedure of having the commentary, in English, together with careful cues for the machine operator, and all English soundtrack dialogue that is to remain in, typed up with varying margins to simplify

further operations: machine cues at the extreme left; remaining English dialogue indented half an inch or so; all commentary indented a full inch. Thus: (from "Jairus' Daughter")

Sound up

(Jesus speaking)

Give not that which is holy unto the dogs, neither cast ye your pearls before swine, lest they trample them under their feet, and turn again and rend you.

Not everyone that saith unto me, Lord, Lord, shall enter into the Kingdom of Heaven, but he that doeth the will of my Father which is in heaven.

Sound down as Jairus kneels

My little daughter is at the point of death. I pray thee, come and heal her.

Sound up, through the departure of Jesus and Jairus and the people.

Sound down as Lydia steps outdoor.

Seeing the crowd pass her door, Lydia comes out to see if she may touch Jesus as He passes.

Then after the commentary is translated, a copy is pasted up with the vernacular commentary cut in sections and pasted into the proper spots. This gives a complete script of what actually is presented, whether English or vernacular. Two copies of this are made, one for the commentator and one for the machine operator.

We have found it helpful to make these into books with stiff covers, hinging the pages in with Scotch tape so that they turn easily. Scripts prepared in this way over a year ago have been through dozens of showings, and on numerous trips, and are still in good condition (which is more than can be said for half a dozen sheets stapled together at one corner)!

PRESENTING THE FINISHED PRODUCT

The operator and the commentator should both be familiar with the film, so that the cues are picked up at the right places and the commentary fits in smoothly.

If the projector has a separate volume control for microphone and for sound for sound-tract, the sound-tract volume is faded at the proper point and the commentary spoken into the microphone. This is much smoother than plugging in the microphone each time when needed.

USE OF VERNACULAR HYMN SLIDES

Mention may be made here of the very great usefulness of hymn slides, responsive readings, etc., in the language of the people, in worship services leading up to the showing of films. Considerable work on this has been done in this department, photographing direct from the hymn book on 35 mm. positive film. The writer will be glad to furnish information on procedures to any who may be interested.

CHAPTER XIII

RELIGIOUS RADIO

JEANNE CARRUTHERS[1]

"WHY include radio in a National Christian Council Handbook on Audio-Visual Aids? Radio in India is a government monopoly and there's no use even considering it. Besides, I'm not interested. Radio is too mechanical and narrow, appealing only to the sense of hearing. And what could I say to the several thousand people who are supposed to be listening? I can talk to the three hundred in my congregation, but I'd be paralysed if I thought I had to prepare a sermon for five or six thousand people. I have to *see* my audience to get anything out of them—or put anything into them."

These are only a few of the reactions that are mentally recorded when the announcement is made that radio will be one of the subjects to be discussed at an Audio-Visual Institute or in a Handbook. The techniques of radio writing and production are beyond the scope of short articles but certain fundamental misconceptions can be corrected.

HUMAN IMAGINATION

First of all, it is true that the ear is the only sense that radio can reach, but "the ear is the route to the imagination of the listener." The stage on which the radio drama is acted is the human imagination. The narrator has only to say the words, "He went home to rest," and presto! a room is conjured up, furnished with easy-chairs and an overstuffed sofa by the Westerner and with soft rugs and pillows by the Eastern listener. There are only three tools that the writer for radio has to work with: sound effects, music and speech, which includes both dialogue and narration. But with these three tools aided by the magic of the ear, dramas can be fashioned that will quicken the pulse of every listener, noble characters long dead can be brought to life and great sermons preached that will capture the emotions as well as the mind of the radio audience.

"The radio audience"—a vast nebular mist of human faces rises up to blot out every idea that the speaker brought with him to the microphone. Suppose you are the speaker. Who is at the other end of the microphone? Probably one man, at home, with his coat off and his feet up. It is to him you must speak. If you begin addressing the sea of faces, he will jump up from his chair and turn off the radio. If on the other hand, you enter his home as a friend whose voice he likes and who can talk to him about the things he is interested in, he will take you to his heart and regard you as one of the best friends he has, especially if you are on the air at regular and frequent intervals.

[1] Mrs. L. B. Carruthers, B.A., Medical Center, Miraj, American Presbyterian Mission, is Hospital Librarian. She studied Dramatic Radio Writing at Columbia University.

RADIO IN SECULAR INDIA

It is true that radio is a Government monopoly in India, but it is not a closed door by any means. In Madras, Trichinopoly, Mysore and other places, Christian services and religious programmes are regularly broadcast and transcribed BBC programmes over All-India Radio always include church services on Sundays. To the professional radio man the most important criterion of any programme is that it fill an audience need and the local station director must be convinced that the programmes you propose to put on does fill such a need. A good programme that tries to deal with the question of the intrinsic worth of the individual, that presents in a compelling way the democratic (and Christian) idea of the importance of the person—would it be turned down in these days when India is trying to build a Republic and engaged in the long-time struggle for "a society in which all inhabitants are persons and are to be treated as persons"? Or would a programme of interviews or round table discussion be considered irrelevant if it enables people to meet others in their geographical area and tells them about one another? "Radio is people speaking to people" and it can be a powerful means of fostering that sense of community so woefully lacking in India today. Even more far-reaching, radio programmes can be produced that will bring to people in India dramatizations of the vision of human brotherhood and that "one-world living which is the new dimension of life for all mankind."

But to get down to earth, how can we learn to write such programmes and how can we get them produced after they are written?

THREE TOOLS

Anyone who can write well can write for radio: dramas, biographies, music programmes with commentaries, sermons, documentaries and other educational programmes—the list is almost endless. The use of only the three tools of sound effects, music and speech necessitates some change of format and emphasis. These special radio techniques can be learned by reading or by attending one of the workshops that the National Christian Council will set up this year in strategic centres such as Kodaikanal.

With a tape or wire recorder these programmes can be rehearsed and produced; they can be played back and tried out in genuine audience situations. Where lack of finance is a big handicap in producing dramatic or experimental programmes, as it most certainly is in India today, then programmes that are already produced and recorded, provided they are up to standard, should be acceptable to Government radio stations.

RADIO'S CHALLENGE

In America, religion is literally in the air. Some of the best and most original programmes on the four national networks are sponsored and produced by churches and the Jewish National Seminary has what is considered by most radio experts to be the finest series in the field of radio, "The Eternal Light" written by Morton Wishengrad. Sixteen denominations have pooled their resources to form the Protestant Radio Commission. Theological semi-

naries have introduced courses in radio for their students, and radio workshops to train church leaders and Christian workers in writing and production have sprung up all over the country. Out here in India, dare the Church ignore this God-given instrument in her hands,—radio, the greatest potential means of mass communication available in the world today?

BOOKS RECOMMENDED

Religious Radio—by Everett Parker.	Harper.
Professional Radio Writing—Albert Crews.	Houghton Mifflin.
Handbook of Radio Writing—Erik Barnouw.	D. C. Heath Boston 1948 edition.
Radio Directing—Earle McGill.	Mc. Graw Hill Co.
Radio Drama Production—Krulevitch.	Rinehart & Co.
The Eternal Light—Morton Wishengrad.	Crown Co.

CHAPTER XIV

AUDIO-VISUAL AIDS IN EVANGELISM

Ralph G. Korteling[1]

THE Church of Jesus Christ has no alternative but to irrevocably identify herself with the command of her Lord to go into all the world and make disciples. This is her Magna Charta, her great and challenging commission. The sincere Christian has no greater joy than that of being an instrument in the service of His King to bring others into the life and fellowship he himself enjoys. He seeks in word and deed to be a letter read and seen by all men inviting them to follow the same Lord he serves and confesses. This torch of evangelism is carried in the relay race of the Church from one generation to another. St. Paul ran in that race and comments, "To all men I have become all things, to save some by all and every means." (1 Cor. 9: 22–Moffat.) "By all and every means" that is the way we are to teach and to preach the unsearchable riches of God in Jesus Christ.

OUR UTMOST FOR HIS HIGHEST

This chapter considers audio-visual-aids in evangelism. It is a challenging subject that promises much in the communication of the Gospel. How wonderful are the tools that God has placed at our disposal that His truth may be seen and heard by all men! The social and political world, the world of industry and entertainment are utilizing to the full all modern means of mass communications. The cinema, radio, television as well as the press are ceaselessly drumming their messages into the minds of people all round the world. Some Christian workers have caught the vision of great possibilities hidden in the use of this media of education. Many others are anxiously waiting to try out audio-visual aids in all sorts of situations. Lest we consider these wonderful inventions as substitutes for the teacher and the preacher, let me sound a caution at the outset. "The gift without the giver is bare." So too in audio-visual aids, the tool without the personal element, without the life-giving spirit is a mere distraction. These modern means of promotion are not easy ways of escape from meticulous preparation and work. This media of reaching the minds and hearts of people in all corners of the globe demands, as never before, every ounce of talent and skill. Our utmost for His highest is the challenge of audio-visual evangelism.

MAKE IT CLEAR

Consider for a moment what it is to evangelize. John R. Mott gave a striking definition when he declared that to evangelize was "to make Christ

[1] The Rev. Ralph G. Korteling, M.A., B.D., Punganur, Chittoot District, South India is loaned by the American Arcot Mission, the Reformed Church in America, and the Cuddapah Diocese, C.S.I. as Field Director of the A-V A Committee of the National Christian Council.

known, loved, honoured and obeyed". In other words the Christian message appeals to the whole man, his intellect, his emotions, his will. It implies teaching and learning in the broad sense of the terms. As evangelists we aim to be effective witnesses for Christ. To find out what constitutes a good teacher or a good preacher, ask a school boy. He will tell you a good teacher "makes things clear", a good preacher "explains a subject so that you can understand it." It is just this fact that gives us pause. How clear is our presentation, how well do we explain to those who know not? How well do people understand the Gospel we proclaim? I know that that depends first of all on how clear we are in our own heart of hearts about the meaning and relevance of Christianity. It also involves effectiveness in transferring our thoughts and our spirit to the minds and hearts of other people. Can audio-visual aids help us?

THE CHILD LEARNS

The word of life which we seek to communicate is something "given". It comes from God: we must receive it. It is an experience so totally transforming as to be spoken of by our Saviour as "second birth". Conscious that fundamentally this is the work of the Spirit of God, we nevertheless with Nicodemus of old ask "how"? How do we receive new facts and experiences into our lives? How do we learn? How do we acquire rich experiences? There are three types of learning experiences that we must keep in mind. The first is direct, concrete, sensory experiences with reality. The infant child before it knows a single word learns by touch and taste, hearing and seeing. Mother's care and watchfulness brings forth from the babe in arms a smile more expressive than words. From birth till the time a child goes to school, the child learns a tremendous amount about life and has had some strong character determining experiences. All this has come to him largely through direct, concrete experiences with the world in which he moves.

NEW WORLD OF SYMBOLS

When the child goes to school a second important type of learning is begun. He is now slowly and progressively introduced to the vast world of symbols. Through the ages the race has built up a system of symbols whereby men and women can write ideas for other people to read. For most languages these are different in form and have to be mastered before the language can be used. This great conglomeration of symbols is both written and spoken. Not only are ideas expressed in complicated combinations of letters in words and sentences, but there is the whole realm of arithmetic figures and signs that must be learned. With the development of science a constantly growing symbolism is invented to express relationships in formulae. To gain even a simple mastery of these symbols so that reading becomes a permanent asset to the boy or girl requires years of application and endless repetition. And when we have acquired proficiency in the use of written and spoken words, how efficient is it as a means of communicating ideas. At best it is an indirect method.

EVANGELISM AND VISUAL AIDS

In our application to evangelism it means that the evangelist must begin with a clear thought in his own mind. Then he has to choose words to express his thoughts that the hearers can understand. They on their part must change these spoken symbols into ideas which the evangelist hopes approximate the ideas in his mind. In this involved process it is easy to see that there is room for error to creep in all along the line. In spite of it all, we must confess that these spoken and written symbols are necessary for civilization and culture. To be a human being without some knowledge of the spoken word is impossible. Thus we have considered the two extremes of direct, concrete contact with life and the abstract process of expressing ideas in language that is highly symbolic. One is lead to ask, Is there no *via media*? No middle road to help us enter a fuller life, no easier way to learn the lessons of life?

The answer is, yes, there is another way along which we may travel in the acquisition of new facts and experiences. It is the broad road of audio-visual aids, the direct experience of representations of reality. Instead of laboriously trying to describe what a kangaroo is, the teacher can show a picture of kangaroos. There will still be plenty of explanation to be made, but a great preliminary hurdle has been crossed by the use of a representation of reality. In imparting the story of Christmas with its rich cast of shepherds and wisemen, the manger and the Holy Family, we all know how effective dramatization is. It is a representation of what happened two thousand years ago.

Dr. Donald F. Ebright has introduced audio-visual aids in "WHAT ARE AUDIO-VISUAL AIDS?"; listing sixteen types. How many of these do you use in your preaching and teaching? Blackboard, bulletin board, charts, posters, cartoons, graphs, maps, flat-pictures, models, exhibits, stereoscopes, excursions, gramophone, records and transcriptions, loudspeakers, public address systems, still projected pictures with slides and film-strips, opaque projection cinema pictures both silent and sound, radio, television? What a world of information and communication these sensory materials open to the inquiring mind! These are the media of promotion which we are to think about in connection with evangelism. At this point let me sound a second warning. None of these aids will work themselves. They can be properly used or they can be ignominiously abused. Only when properly used will they be effective to shorten the learning process and lengthen the span of remembering what has been learned.

Having considered briefly the basic theory of audio-visual aids, let us now review some of the practical problems that enter into evangelistic proclamation.

THE AUDIENCE

The audience, of course, is a determining factor in what we shall say and how we shall say it, what materials we shall use, and how we shall use them. It would be well among other things to ask the following questions when planning the meeting:

How many people might attend?

Will the gathering be composed largely of children, women or men, or all three groups?

Will it be a controlled group like that of a school or club, or an uncontrolled group such as gather for out-of-doors public meetings?

Will they be town or village people?

Will they be literate or illiterate?

Will they be a professional group? Lawyers, teachers, businessmen?

What is their chief occupation?

What religious conceptions do they hold? Hindu? Muslim? Animistic? Agnostic? Atheistic,—etc.?

Are they used to seeing cinema pictures?

To what extent can you expect them to interpret a flat picture or a projected still picture? How much of their time will they give you?

Have they invited you to come or are you inviting them to come to you?

Is this a group you have spoken to before?

What might they be expected to know about the Christian message, about Christian people, Christian schools or hospitals, the Christian Church? Such questions as these will help us to formulate our approach, select our subject and materials. The better we understand our audience the better qualified we are to direct our message to their life and needs.

PLACE OF MEETING

The place of meeting is not only a physical factor but a psychological factor that we must not overlook. It does make a difference, does it not, whether we meet in a market-place or a church, on the bank of a river or in a home? Is our place of meeting central and conveniently located? Do you have traffic, noise and dust to compete with? If indoors, what is the size and shape of the room or hall? If at night, and you wish to project pictures, will the moonlight interfere with the screen? Can the people sit conveniently to hear and see?

SERVICE TIME

Next thing to think about is the importance of time of meeting. The evening may be the most convenient time to hold a meeting but then the people may be tired from a long day's work in the fields. Shall you start your programme before or after food? The seasons of the year play a part in your programme planning. During the monsoon season out-of-door meetings are often impossible. During the dry summer months the people have more time to sit and enjoy visitors. There will be certain times of the day when women can most conveniently gather. There will be certain days of the week you could set up an exhibit at the *shandy*, *mela* or bazar. The mornings may be best for children's meetings; they fall asleep at night.

CONTENT OF THE PROGRAMME

Knowing the audience, time and place of meeting one naturally begins to think of programme, or does he not? I fear far too often consideration of programme is left to the spur of the moment. After the evangelist arrives on the scene and about the time the meeting is to begin, some one is pressed into service to say something or sing a song. The best antidote that I know for such careless, ill-prepared procedures is audio-visual aids. When one is using audio-visual materials some thinking ahead of time must take place. But here too there is room for criminal neglect. The note that needs to be struck in this regard is emphasis on purpose. What definite purpose do we set out to accomplish in this meeting? It is next to useless to say we want to give an evangelistic message. We need to be far more definite, more precise than that. If you are going to hit the nail on the head you will have to know what that nail is. No good purpose is served to begin with Genesis and endlessly go on to Revelation, admonishing, harangueing the people to listen to your harangue. Nor is it good practice to cover a variety of subjects in one session with the people. Is there a gripping introduction, sustained continuity, and a clear and definite ending to the programme for the meeting? Thoughtful and prayerful planning is the secret of success in this work as well as in other fields of endeavour.

SELECTION OF MATERIALS

With a clear-cut purpose in mind the organizer of the meeting selects his materials as best suited to carry out this purpose plenty of time in advance. Shall he use flat pictures, if so which ones and where are they to be had? Is flannelgraph the best medium of telling the story? If so, is everything prepared? Should he introduce the three dimentional pictures using the stereoscope? If he thinks projected still pictures are nicely suited to accomplish his goal, which pictures will he use and where are they to be had? Every audio-visual aid has its peculiar function and the evangelist should know what these are. He must be acquainted with the sources of materials such as are listed in Chapter XXXII, "Sources of Films for Rent in India"

PRE-VIEW ALL MATERIAL

The material you have chosen to use may be a film that you have never seen before. You have ordered on the basis of catalogue description or recommendation of a friend. Surely before you use this film in public and speak to it, you will pre-view it in order to know what it contains and what commentary you will want to give. It may be an English sound film the sound track of which you will want to shut out and speak through the microphone in Telugu. This is an impossibility without pre-view. Or you may be giving a blackboard talk, or a flannelgraph demonstration, or centering attention on some of the master religious pictures. All of these require study and thought before they can be correctly used in public. I wonder if you do not agree with me that the quality of our evangelistic presentation must be raised. This can only be done by more thoughtful preparation.

EVALUATION

In educational and promotional circles using audio-visual materials there is a persistent emphasis on evaluation. We who are anxious to do our best that by all and every means, men, women and children may come to know, honour, love and obey Christ must be constantly evaluating our service. This is basic to all improvement. After each programme that we give in school or home, town or village, we should ask such questions as these: Was my work as well prepared as I thought it was? Could I have improved on the reading of the Bible? Were the divisions of the programme well timed? Was the introduction to the film used effective? What about the close of the programme? Did it leave in the minds of the audience a feeling of reverence, respect and stimulation? Did I have everything under control from the beginning? Were the pictures projected clearly? Was the recording clearly transmitted? How could I improve on the presentation and its execution?

In this art of communicating thoughts and ideas to others there is so much to learn that if we are not constantly improving we are dropping behind. All this takes time, study and prayer.

MAKE IT STICK

We are all aware that the main instruments influencing public thought in the world today is the press, the radio and the cinema. These three are powerful agents moulding the thinking of the millions in all parts of the world. How is this possible? What is the secret of this charm over the mind of man? Is it not this principle of repetition? The man that reads a paper once in six months is not going to be influenced by it. The family that listens to the radio once in a blue moon isn't going to be moved by it. A cinema seen two or three times a year is not going to change the thinking of people. Is it not the fact that people who read the paper every day, turn on the radio morning and night, go to the cinema two or three times a week, that make the deep and lasting impression? The world sees and hears the same message from many angles repeated almost endlessly. This is one of the secrets of good advertising. Whether we like it or not, it is a fact. To attend church once in two months is not sufficient to maintain the religious glow. To read the Bible occasionally is not good practice. To pray when in trouble is not good prayer. To carry on evangelism in that way is also not good technique. People have to be visited more frequently than twice a year. Audio-visual aids cannot be expected to take the place of planned follow-up. Into our evangelism must come a system from which we might expect results. This subject demands consideration. Each area will have to work out its own system, keeping in mind the fundamental educational principles.

DOES IT COST?

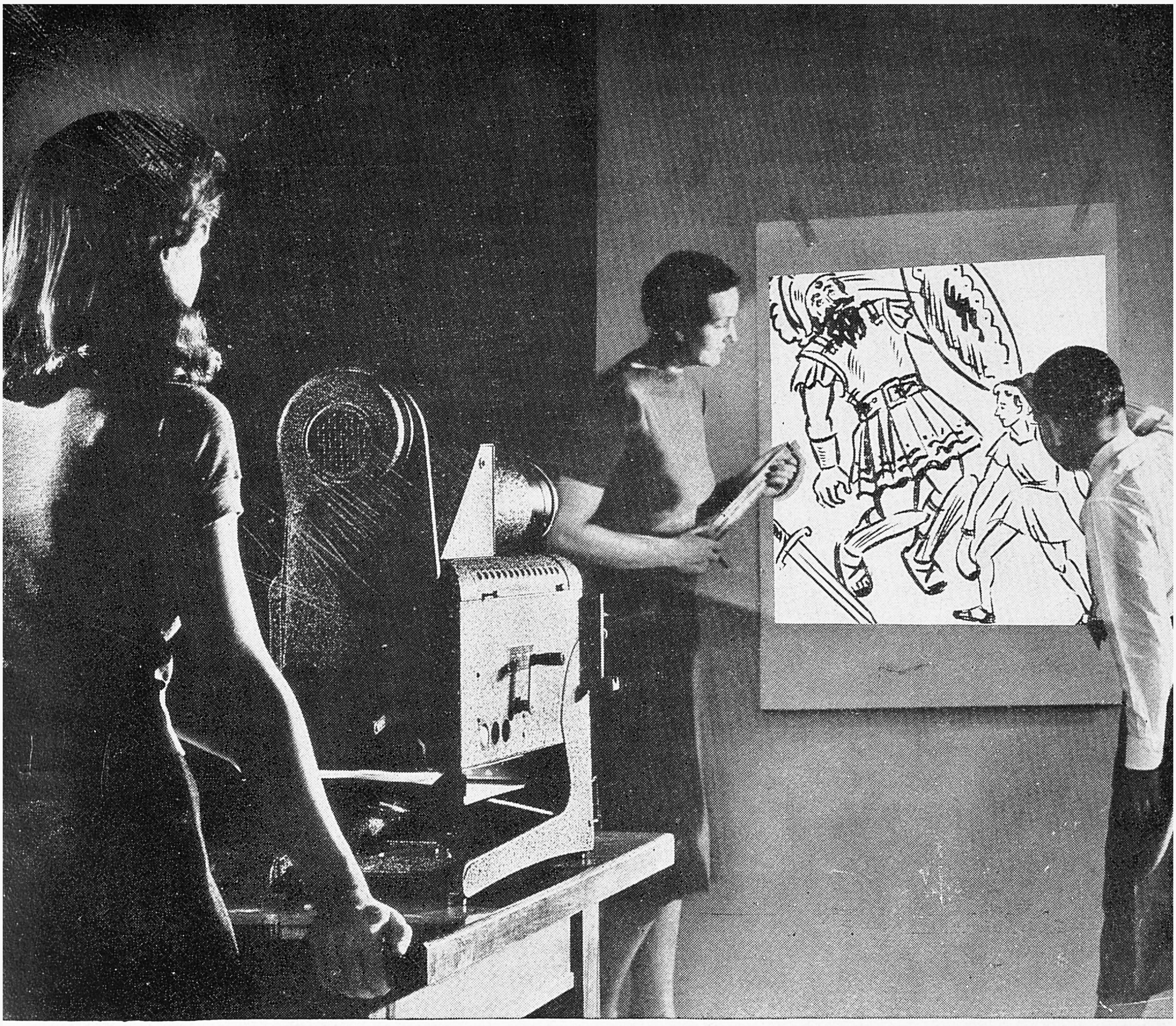
The question of expenses naturally arises when our financial budget is already embarrassed. We would not evade the issue of costs. I want to place before you four propositions that will be useful in this regard:

1. In the use of audio-visual aids begin where you are with what you

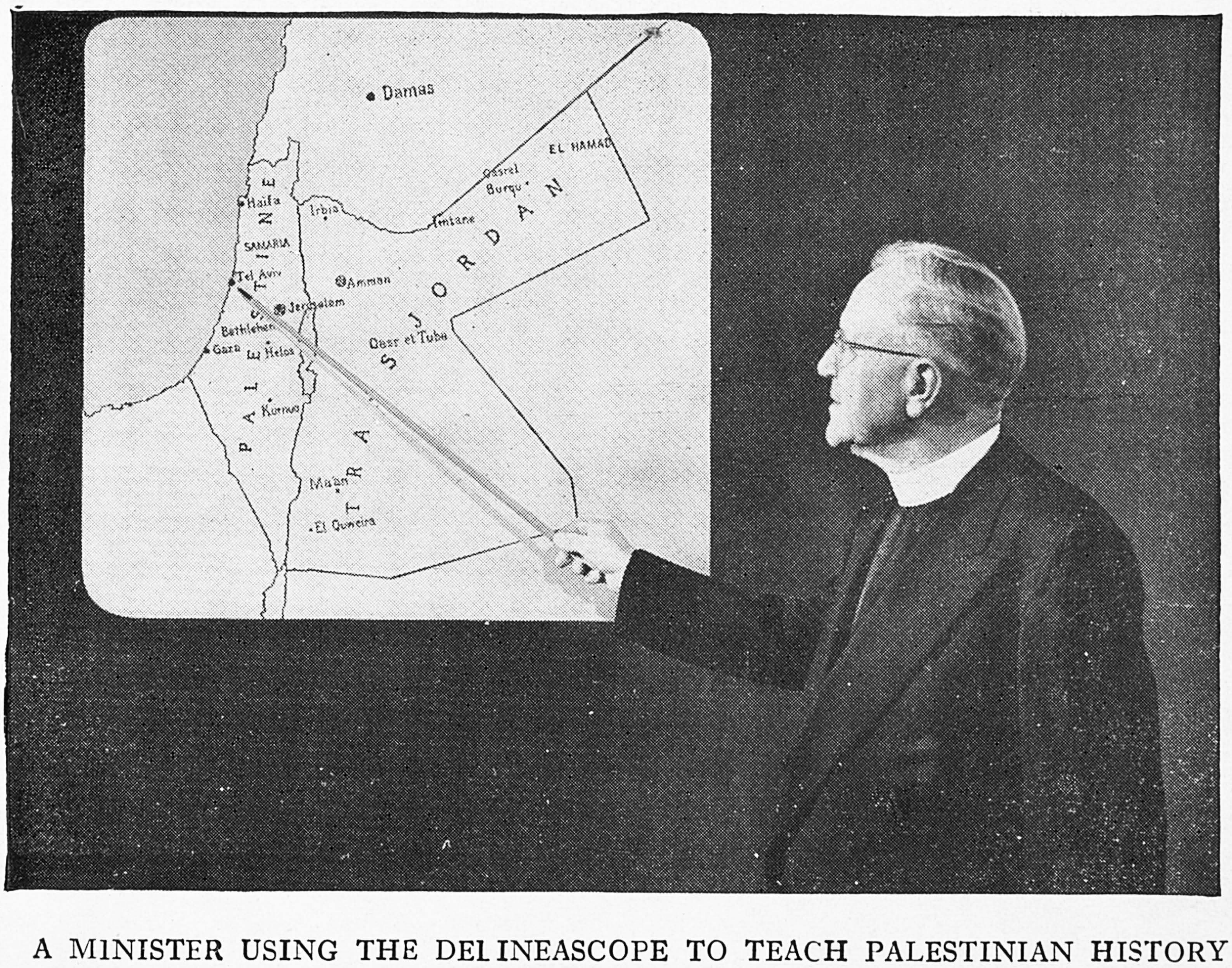
have. Learn to use more effectively flat pictures of proper size mounted on cardboard. This may cost you a few annas and some time. Make a flannel board and cut out characters and accessories from pictures you may have available, and then practice using them. This may cost you a rupee or two. Think of the possibilities in the creative use of the humble blackboard. You may have this equipment, in which case the cost will be negligible. A roll-up type of blackboard that you can easily carry under your arm is not expensive. What you are going to draw on this blackboard does require thought and preparation. You may have an old magic lantern that has lain idle for years. Dig it out, polish it up, use it. Give attention to music and drama. These are first-class audio-visual aids. Portable gramophones are available in many places. Use the records you have and buy a couple more. Remember that a bright light at night can be used as a valuable visual aid. Again I repeat, begin where you are and what you have. "My people perish for lack of vision," said the Lord.

2. The second principle is this: Acquire new equipment as you can. See Chapter IV, "Equipment Recommendations and Sources".

3. Finally we must face the fact that to do the Lord's work requires finances. It is not fair to suppose that we can do good, efficient evangelism without an adequate budget. For us to consider is the question, does the advent of new and better sensory aids to promotional work have any relevancy to ways of carrying on evangelistic witness? Does added efficiency justify added costs In the changing *milieu* in which we find ourselves today, does audio-visual evangelism present any special appeal? Let us not forget that audio-visual aids have passed the stage of experimentation. They have been accepted by education, industry, commerce, national publicity organizations, the United Nations. Already the missionary enterprise is late in getting started but there are unmistakable glimmers of a bright future ahead.



THE OPAQUE PROJECTOR IN RELIGIOUS EDUCATION



A MINISTER USING THE DELINEASCOPE TO TEACH PALESTINIAN HISTORY

Courtesy: American Optical Company, Buffalo, N.Y.

Typical 16 mm Sound Projector

Courtesy: Ampro Corporation

CHAPTER XV

AUDIO-VISUAL AIDS IN THE SERVICE OF THE CHURCH

NEUMAN J. LE SHANA[1]

EVERY day we use visual methods in communicating ideas. We draw a map on the back of an envelope to show how to get to a certain address; we show a picture of our children to an old friend; we strike a pose to show how Aunt Rowena looked when she heard the news. On a trip we send home scenic postcards. We bring home souvenirs and curios, photographs and movies because in these ways we can share what we saw and experienced with those who could not be with us. Yes, visual-education is just about as simple as that. It all boils down to the fact that when we want to convey an idea or stimulate a new attitude in a person, it is often much easier to *show* him than to merely tell him.

In the face of these facts and of the further fact that the church has so little time and so great a need to give effective religious teaching to our youth, it is easy to understand why the use of religious films in our churches showed an increase between 1941 and 1943 of 250 per cent, and why the rate of increase indicates that the use of religious films has trebled today the amount used in 1943. Yes, Audio-visual education has come to stay, and it is important that we as members and leaders in the church in India, recognise how great is the value of Audio-Visual Aids in the building and maintaining the programme of the church as a whole.

It is no wonder then that churches all over the country are asking what equipment they should have for effective educational programmes utilizing visual aids. This is a difficult task to answer in so many words. Again, it would be so much easier to *show* them in their own church buildings.

FILMS AND FILMSLIDES SERVE THE CHURCH!

This is an all-important fact that we should recognise. When the 16 mm. films appeared some years ago, no adult groups benefited more than those in churches throughout the country. Through their means, members have been stimulated to greater service in all departments of the church, and the result has been evidenced in increased attendance and giving.

Elsewhere in this volume the many questions uppermost in your minds will be answered (re-equipment, techniques, etc.), but it is my main purpose to get you as Church members and churches interested, and to place before you ways and means for the carrying on of an effective Audio-Visual Programme in your church.

Writing as the pastor of a large city church, I fully recognise that the question of a budget naturally has some bearing on the subject, though in view of the need to make the teaching programme more effective, this certainly should not be the only consideration. More important are the individual

[1] Rev. Neuman J. LeShana 7 Fyzabad Road, Lucknow, U.P., has been using Audio-Visual Aids in his urban ministry for twenty years. He is one of the Audio-Visual pioneers in the U.P.

preferences and abilities of the teachers and other leaders who are going to use the visual materials.

ONE WAY TO START

First—get enthused yourself. Read as many articles on the subject as possible. Send away for catalogues and other literature offered by equipment manufacturers and film libraries. Study them, until you feel that you are familiar at least with the principles of projected aids, namely, film-strips and slides, and motion pictures. The next step is to "Sell" the officials of your church. After this, you are ready for the third step. Prayerfully choose two individuals for the important positions of General Chairman of your Audio-Visual Committee and Librarian and "go after them." If you have been successful thus far, call a meeting of these two persons together with the balance of the Audio-Visual committee which may be composed of the superintendents of the Sunday School Department or Young People's Society. At this meeting again review the proposed project. Emphasize the fact that the visual methods should be integrated with the present teaching procedure. Then discuss financing. A part of the committee might plan to approach an "older" adult class or group regarding their providing the funds for the slide and filmstrip projector. Authorise the Librarian to purchase a sample filmstrip or slides (or rent same) at once. Decide on a definite *monthly meeting* night and adjourn this first meeting.

DEMONSTRATION NIGHT

At the next meeting have a demonstration of a slide projector and a combination filmstrip and slide projector. The superintendents should learn to operate these machines so that they may be mechanically helpful to their teacher if necessary. Discuss the advisability of purchasing a slide projector or a combination slide and filmstrip projector, and if possible a motion picture machine. If the church is to be educated and encouraged in the use of visual aids, an initial total investment of approximately Rs. 1,200 (see Chapter IV) for this type of equipment is necessary. A budget of about Rs. 30 monthly will be sufficient to keep you fairly well up-to-date in slides and filmstrips. Authorize purchase of the necessary number of accessories, i.e., screens, spare bulbs, etc.

At the next meeting invite all the teachers and the whole congregation to attend. Choose carefully the films and slides to be shown and arrange a programme that will be attractive and serve to "sell" the whole congregation. You will be amazed at the response!

THE LIBRARIAN'S JOB

From here on, the Librarian's job becomes increasingly methodical. In a card file or loose leaf book the librarian begins a systematic recording of the slides and filmstrips as they are added. Each slide should be given a number as well as a title. By the use of various combinations the slides may be used to illustrate many Bible stories or lessons other than the original for which they have been purchased. A few weeks preceding each quarter, a mimeographed sheet should be prepared on which is listed all the slides,

etc., up to date. A copy given to each teacher and the heads of the Sunday School and Young People's Society, Ladies Society, etc., will be of timely and mutual benefit. With the purchase of a date book by the Librarian the programme is ready to really get under way.

RULES TO FOLLOW

If a teacher or superintendent desires a few slides or a filmstrip, he arranges with the Librarian for these together with the projector and the screen. The Librarian enters this reservation in the date book and this material is segregated and ready when the time arrives. The instructor using slides or filmstrips should prepare an outline of what he will say or do when each picture is shown on the screen. A small number of slides carefully and slowly used is better than a large number used in rapid succession or without sufficient explanation. Slides or filmstrips are an aid, not a replacement for the lesson to be imparted.

It is important to keep the slide storage file in an orderly way for quick and easy reference. Only the Librarian, the Audio-Visual Chairman, and the Minister would have access to the room or closet containing the equipment and materials.

NOTES FROM EXPERIENCE

Three types of films are shown in churches—educational, devotional and entertainment. The first outnumbers the other two by a large margin. This is because such a great variety of subjects is included in this class, and their general nature admits their use on almost any occasion.

Educational religious subjects are screened before church groups at various meetings of the congregation's clubs; some are shown before the entire church at Sunday or midweek services, and others especially for the Sunday School.

Devotional film subjects, which are most vital to the work of the church can be found in a series illustrating the books of the Bible; the Life of Jesus —His Miracles, Parables, etc., and sets on the life of St. Paul and the History of the Early Church, most of which are long enough to provide a full evening's programme. All of these are of such a devotional character that they may be used in the regular services of most churches, at prayer meetings and on special religious holidays.

Entertainment subjects, for young and old, can be picked from commercial and Church catalogues if the person responsible for the programme has any ordinary knowledge of what the titles represent. For the most part, those in charge of children's work choose animated cartoons, or legendary stories for holiday occasions. Ministers pick light, one reel comedies or some item of news, either to relieve a serious programme, or to fill out an evening's entertainment. Despite the care one may exercise in choosing from a film list or catalogue, mistakes are sometimes made. So it is wise to preview the film before presenting it.

Filmslides: Of all the visual aids that have been developed for use in the Church programme, the filmslide is most practical. It is true that in many instances the still picture is less effective than the motion picture, but in

most of the varied uses of the projected picture in the Church programme, the projected still picture is just as effective, and more available. The inexpensiveness of the projection equipment necessary for the use of filmslides is a consideration many Churches have to bear in mind.

In an article of this length, it is impossible to survey in detail the field of the use of filmslides in our Churches, or to enter into a discussion of the value of the projected picture as an aid in our teaching effort and in our worship service. Sufficient to say that projected still pictures are of inestimable value as an aid both in the classroom and in the worship service.

FILMSLIDES IN THE SUNDAY SCHOOL

It is only in comparatively recent times that filmslides have been used very extensively in the Classroom in the Sunday School, and more and more teachers are finding it to be an important, if not indispensable, part of their teaching equipment. Maps, outlines, diagrams, pictures and actual photographs, arranged in the order the teacher wants them for most efficient teaching, are instantly available by means of the filmslide. Since the filmslides are "stills", the teacher can use as much or as little time as is desired to develop the theme of any particular part of the lesson. For analytical Bible study, filmslides bring the work of some of the greatest Bible scholars to the classroom. Sunday School lessons become vital and interesting accounts of the happenings of a few ancient peoples in their relation to God and in their quest of knowledge about Him; they become alive and vibrant with a message the pupils can use to practical advantage each day of the week.

The use of Kodachrome slides in the Church School opens wide possibilities for increasing the real effectiveness of teaching effort. The advantage of Kodachrome reproductions of the great paintings is that these paintings are brought to the classroom in their natural colour, and no one can deny the value of colour and beauty in religious education. Kodachrome can be used in the Church School in every department and in every class with equal results, and you can make your own.

FILMSLIDES IN YOUNG PEOPLE'S MEETINGS

While it is quite probable that in young people's group meetings, the motion picture presents more appeal, yet filmslides have proved their worth as an aid in deepening the spiritual understanding of young people. Filmslides are especially valuable for use in evangelistic efforts among this age group. They can also be used to advantage in discussion groups and in teaching an appreciation of the finer things of life. Such filmslides as "Christ and the Fine Arts", will be of great value in response to great art, and in deepening of the essential values of living. Many other uses will be found for filmslides in the Church and its various activities. Special day programmes, illustrated song services, church reports, special campaigns, etc., can all be made attractive and effective through the use of filmslides. A filmslide projector, some ingenuity, and some pictures will often multiply the success of any meeting, whether it be a Church social or a worship service.

A "visualized" message *will* increase your Sunday evening attendance, and will make your message more effective.

CHAPTER XVI

AUDIO-VISUAL AIDS IN WORSHIP

DONALD E. RUGH[1]

THE use of Audio-Visual Aids in worship is an innovation which is contrary to the tradition of the majority of Protestant Churches in India. During the Protestant Reformation in Europe radical changes in worship were made. At Zurich, Switzerland, an order of worship was introduced from which the organ, choir and even congregational singing were banished. The Puritans of England in their attempt to break away from the medieval church fell back on the customs of the Apostolic Age. When transplanted to the continent of America the Puritans built their "meeting houses" as plain as barns eliminating stained glass windows, musical instruments, and all forms of ceremonial worship. Exhortation through the sermon was given the central place.[2]

The missions stemming from America were all influenced by the Puritan tradition and the Methodists, Baptists and Presbyterians along with the Quakers made little use of ceremonial worship as they organized the Church in India.

LINGERING DOUBTS

Although the churches are no longer so much interested in expelling forms of Catholicism as they were 300 years ago, there is still often found a resistance against introducing new forms which detract from the sermon as the central part of the service. When it was suggested in a certain church that one evening of Holy Week be devoted to showing pictures of the last week of Christ's earthly ministry, the minister in charge of arrangements said, "Of course, sufficient time would be left for a sermon."

There are many pastors and leaders who have not yet learned the value of combining the spoken word with the visualized scene. In my younger days I attended Epworth League for at least eight years, yet I can recall what a leader said in only one service. He chose for his text the words on a stained glass window in the room in which we met. There was a vine with a bunch of grapes pictured in the window and the words, "I am the vine and ye are the branches". He brought out the thought that we are united in Christian fellowship like a bunch of grapes but we must keep spreading out like a vine and grow if we are to be fruitful.

JESUS WAS A MASTER

Jesus was a master in the audio-visual method. As the people sat in the open, perhaps on the border of a wheat field with bushes, rocks and paths

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[2] Fisher, *History of the Christian Church*, pp. 419-421.

in full view He gave them the parable of the sower in an unforgettable manner. All the parables associated spiritual and intangible lessons with visible symbols.

We cannot always have a wheat field nor a stained glass window to illustrate our talks but it is possible in small groups to use such things as flannel-graph or large flat pictures and in larger groups to use projected pictures.

Lantern slides were introduced in the churches at the turn of this century and moving pictures after 1920, yet their use has often been more as a crowd booster than as an aid to worship. Still most of the films used in churches are educational, entertaining or for missionary propaganda. The "King of kings" has had wide circulation and great effect and there are several films produced by Arthur Rank in sound which have a real message in them, (available in National Christian Council Library). They can be used for inspirational programmes where they become the central part of the service.

AVAILABLE MATERIAL

The Cathedral or Church-Craft Co. have produced numerous slides and film strips on mostly every subject in the Bible. Many of these are available in India through the National Christian Council and the Methodist Central Audio-Visual Committee. These units along with such pictures as the "Life of Christ" by Elsie Anna Woods and the paintings of Coping on New Testament subjects can yield excellent material for "worship aids".

It is the easiest thing in the world to illustrate a Scripture lesson with any of the above-mentioned sets, and it is also very simple to select a picture for the central theme of a talk.

PRACTICAL PROBLEMS

However, if pictures are to be projected satisfactorily there are a lot of headaches for the projectionist which will perhaps be dealt with at more length in other chapters of this book. The main thing which must be said here is that the projectionist must be so familiar with the handling of his machine and the slides or strips that he can throw them on the screen at the proper moment in the proper focus and in the proper position (not upside down).

As one progresses with the building up of equipment and familiarity with its use it is possible and profitable to use recorded music or synchronized speeches along with film strips and also to use the microphone so that the leader speaks without putting himself in front of the group.

The darkening of the room is often a problem, but my experience is that throughout most of the year projected services can be held outside more effectively than inside. For some reason the average person thinks that they are helping the situation by closing the doors and windows even on a dark evening. I have suffered more in using projected pictures from lack of ventilation than from too much light. With a beaded screen in a position where the light does not strike it from the front it is amazing how light the room can be and still get satisfactory results, if the projector bulb is sufficiently strong.

There is really a great advantage to projecting pictures as the centre of interest for a worship service. For one thing the distractions around us are not as visible, and secondly it holds the attention of the small children who are often a source of disturbance. It becomes possible for the leader working in close harmony with the projectionists to capture a mood that will transport the worshippers from their present surroundngs to a place perhaps removed by thousands of miles and many centuries or to a thought which transcends the bounds of this earth. When this becomes possible then the "Aids" have become really an aid.

The editor of the Church Department in the *Educational Screen* has stated, "There is no such thing as Visual Education. What the church is trying to give the child, youth and adults is the desire and ability to lead a certain kind of life, and in the accomplishment of this great and noble work many kinds of material and methods will be used".

Rogers and Veith in *Visual Aids in the Church* say, "The primary question in the use of visual material must always be, 'What help will they offer in achieving the experience of worship for all the members of the worshipping group?'" In worship services we must build our programme around the needs of the group for spiritual guidance rather than around the film library.

WHICH AIDS?

For those who wish to make more extensive use of projected materials than the film libraries allow, the epidioscope or delinioscope is the best answer. With this flat picture may be shown from any source or even a passage of the Bible can be put before the group so that they can more easily recall it. The words of hymns may also be typed and projected or used directly out of the book. There are several English hymns now on film strips and the production of the Christmas Carols on coloured slides by Dr. Ebright and Mr. Reed has been a real step forward toward making Audio-Visual Aids in worship more practical. As time goes on it is hoped and expected that more and more of such material will become available in each language area and that everyone will co-operate in giving it wide publicity and distribution.

EXAMPLES OF WORSHIP SERVICES

The following are examples of worship services which can be used effectively with visual aids. They are not presented for complete adoption but as suggestive methods for using visual aids under different circumstances.

(*a*) A SERVICE FOR GENERAL USE

Call to worship (Picture of natural beauty in colour on screen):

"The earth is the Lord's and the fulness thereof:
The world and they that dwell therein.
O worship the Lord in the beauty of holiness."

Hymn "For the Beauty of the Earth" (Film-strip RG 77 N.C.C. Library).

Scripture reading—Psalm 8:

Verses 1, 2 (picture of natural beauty).

Verse 3 (picture of sky—stars, if possible).

Verses 4–6 (picture of people).

Verses 7–9 (pastoral scene).

PRAYER

Moving pictures "The Vale of Kashmir" colour (El 29, 30 N.C.C. Library). Accompanied by playing of records—no comments are necessary.

Hymn: "Fairest Lord Jesus" (film-strip RG 78 N.C.C. Library).

CLOSING PRAYER

"We thank Thee, our Father, for Thy Thoughtfulness in making the world so wondrous fair. We praise Thee for the glory of the morning, the joys of noon-day and the beauty of sunset. Open our eyes that we may become more sensitive to beauty in its various forms. Grant that the glories of nature may remind us of Thee, who art the Creator and Ruler of all nature. Touch our hearts that this love for Thy creation may lead us to a deeper love for Thee and Thy Son in Whose name we pray. AMEN.

(*b*) A HINDUSTANI SERVICE FOR THE CHRISTMAS SEASON

Introduction: "Bara Din Gane Ka Waqt Hai."

(Film-strip of Christmas Carols produced by Ebright and Reed).

(For best use in such a service they should be in slide binders).

Sing: "Suno! Falki Fauj Sharif" (Hark the Herald Angels Sing). "Ulfat Ajid" (Silent Night).

Prayer.

"The birth of Jesus" (Church-Craft slide set No. 6). Illustrates Luke 2: 1–20 with 14 coloured slides).

Sing: "Aya hai Yesu, Aya hai—"

"Ham tin badshah" (We Three Kings).

"The Wisemen find Jesus" (Church-Craft slide set No. 6). (Illustrates Matt. 2: 1–12 in 9 slides).

Prayer.

Sing: "Khush ho, Khudawand aya hai". (Joy to the world the Lord has come).

(*c*) A SERVICE FOR HOLY WEEK

Scripture sentences:

"Though He was rich, yet for your sakes He became poor, that ye through His poverty might be rich." 2 Cor. 8: 9.

"Who for the joy that was set before Him endured the cross, despising the shame, and is set down on the right hand of God". Heb. 12: 2.

Hymn: "Jesus Keep Me Near The Cross" (picturol).

Scripture: Mark 15: 6–15, "Christ before Pilate" (Picture No. 6 "Life of Christ" Roll No. 4–Bray).

Prayer: "My Lord Jesus, it was not Pilate, no it was my sins that condemned Thee. So often I have listened to the crying of the mob and done that which I knew was wrong in Thine eyes. I repent with my whole heart for having offended Thee. Forgive me most merciful Jesus".

Scripture: John 19: 16, 17, "Christ bearing the cross" (Picture No. 10).

Quartet: "Must Jesus bear the cross alone?"

Prayer: "My Lord Jesus, it was for me that Thou didst bear the Cross. Too often I have fretted under the load of my small cross forgetting what Thou hast done for me. Give me the help I need to carry my cross with patience and give me strength to be a worthy disciple. I repent with my whole heart for having been impatient and weak. Forgive me, most gracious Jesus".

Scripture: Mark 15: 21, "The Cyrene helps" (Picture No. 10).

Poem: "Simon the Cyrene speaks", *Christ and the Fine Arts*, p. 402.

Prayer: "My Lord Jesus, may it not be necessary for others to compel me to help Thee as Simon was compelled. Give me a consciousness of the needs of others and a sensitiveness to Thy Holy Will. Forgive me for having been blind to Thy need and deaf to Thy cry for help. I repent with my whole heart for having been so slack and, slow. Forgive me, most compassionate Jesus".

Scripture: Mark 15: 22–32, "Placed on the cross" (Picture No. 13).

Quartet: "Beneath the cross of Jesus".

Prayer: "My Lord Jesus, the suffering which Thou didst bear for me is more than I can comprehend. Yet like the soldiers who gambled at Thy feet and as the crowd that called out in mockery, I have been unconscious of Thy grief and of the meaning of Thy sacrifice. Forgive me for having failed to understand and sympathize. I repent with my whole heart for having been so cold and stupid. Forgive me, most understanding Jesus."

Scripture: Mark 15: 33–39, "Death on the cross" (Picture No. 14).

Quartet: "God so loved the world".

Prayer: "My Lord Jesus, I have merited by my own sins to die and yet Thou hast gone through the valley of the shadow for me. I have acted and spoken as if by my own cleverness and wit I could overcome all obstacles. Yet there is no wisdom in the world that

can overcome the obstacle of death except Thy divine plan. Forgive me for having been so self-willed and unwilling to yield. I repent with my whole heart for having been so selfish and stubborn. Forgive me, most loving Jesus".

Scripture: Mark 15: 42–47, "Placing in the Tomb" (Picture No. 16).

Hymn: "When I survey the wonderous cross" (Picturol).
Benediction.

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SOURCES OF AIDS FOR WORSHIP

A. (Rentals): *National Christian Council Film Library*; C/o H. R. Ferger, Agricultural Institute P.O., Allahabad District.

B. (Sales): All addresses in U.S.A.

1. *Church-Craft Pictures*: St. Louis, Missouri; Wide variety of subjects; 50 slides for $30.00; Hymn slides $00.50 each.
2. *Fred Visser*; Full colour Bible Slides; 139½ S. Westmoreland, Los Angeles 4, Calif.; Sets of 50 slides $13.75.
3. *Methodist Publishing House*, 1021 McGee St., Kansas City 6, Missouri; Bibletone phonograph records; albums of hymns, choir numbers, Cathedral bells, etc.
4. *Stanley Bowman Co.*; 2067 Broadway at 72nd St., New York 23, N.Y.; Christmas story on coloured film-strip $7.50; Hymns on film-strips with one verse to a frame, $2.00. Many film-strips on such subjects as Christian Home, Stewardship, etc.
5. *Visual Education Service*; Yale Divinity School; 409 Prospect St., New Haven 11, Conn.; illustrations of Christ and the Fine Arts, 123 slides of Harold Copings paintings; about $.30 each.

CHAPTER XVII

AUDIO-VISUAL EDUCATION IN THE HOME

L. Winifred Bryce[1]

AUDIO-Visual Education has now been well established as a method ot educating both children and adults. Although not much progress is. seen in Indian schools in this respect, some earnest efforts have been made to teach child-en by means of pictures and objects of various kinds and music is having an increasingly important place in the curriculum. All these efforts, however, are primarily designed to educate the young in knowledge, chiefly in the acquisition of facts and the completion of courses of instruction —even music is often designed to prepare people for examinations.

Audio-Visual Education in the home, however, has quite different motives and scope. It is designed, in short, to cultivate and express the emotional life of the child, an aspect of the child's personality which is almost totally disregarded by the educational system.

FROM BIRTH

Rightly considered, Audio-Visual Education in the home begins at birth. A child is said to be born with only two fears, the fear of falling, and the fear of a sudden loud noise. This latter point suggests the extreme sensitiveness of the child's ear to sounds. Any one who has observed children knows that long before they can actually understand the words spoken to them, they respond to the tone in which these words are uttered and draw very accurate conclusions as to what the adult is trying to communicate. A distressingly common experience for the child in both home and school is to be shouted at. If you wander into almost any school and pay a surprise visit you will find in too many cases the teachers acting as if the children were all deaf and simply shouting at them. Even though the old method of education whereby in turn they shouted their lessons back at teachers has been largely abolished, it still occurs in some places and, in many more places, the teachers talk all day long in a loud unnatural voice. It must be extremely tiring for the children to listen to such sounds and it is probable that the only way they can bear it is unconsciously to refuse to listen to much of what goes on. Nobody could really pay attention to that volume of noise without becoming exhausted, or in sheer self-defence, indifferent. If this is still true of some schools, it is, unfortunately, even more prevalent in many homes, where quite an unnecessary amount of loud talking and even screaming goes on. One of the first points in the Audio Education of the child should surely be the cultivation of speech with clear articulation and pleasant tones. It would have a wonderful effect on the peace and harmony of the home. I have come across children

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who are so accustomed to being screamed at when their mothers wanted them to do anything that at first they ignored any request quietly spoken under the impression that it was mere conversation and of no significance whatever. When, however, children become accustomed to quiet and pleasant ways of speech they find it wonderfully restful. Sometimes children actually wear themselves out by unnecessary screaming when they play. The children should have an opportunity to shout and laugh loudly at times, but a constant competitive noise is not only meaningless but harmful.

GOOD MUSIC

The next step after pleasant speech training has been given is to awaken in the child an appreciation of good music. Some children show musical ability at a remarkably early age by their response to melody or to rhythm. In fact, some children learn to sing or beat out a rhythm almost as soon as they learn to talk. One little girl I knew could carry a tune correctly as soon as she could frame sentences properly. Other children develop their musical abilities much more slowly. One child, a boy, did not really show any musical appreciation until he was ten years old. He never became proficient in music but he did learn to enjoy it and even to produce it in a modest way. One of the greatest gifts a child can have is a mother who will sing to him as she goes about her ordinary household tasks or sits down with her little child at the close of the day. Nursery rhymes, folk-songs, hymns, snatches of favourite melodies, all come into her repertoire. It is surprising how useful music may be in the discipline of the home. Sensitive, highstrung children, often get into difficulties because they receive a multitude of impressions and adequate expression is so very difficult for them. Society makes a terrific impact upon some children and they become so full of conflicting thoughts and feelings that suddenly a spark seems to ignite the whole confused mass and the result may be called a temper-tantrum or just plain naughtiness of some kind. One little girl of four, who had what is often known as the "artistic temperament", suffered in this way and was a perplexity to her mother until a wise and discerning teacher suggested that the child be given music lessons. The whole situation changed as if by magic and the mother soon learned, when the child showed signs of suppressed emotion, to say "Let us sing", or set the little girl to picking out tunes by herself, and as if by magic, everything was happy once more.

By careful planning it is possible for many homes, which are not well off, to have some kind of a musical instrument. Some people make their own. My father, when he was a boy on a farm, made his own violin when he was 16 years of age and he kept it all the rest of his life. Even the little cymbals and bells that can be bought in the bazaar can help the children to develop a sense of rhythm as they sing together. The free spontaneous dancing of children to a gramophone record, mouth organ, a flute, or even a whistle, is another spontaneous expression of development in audio appreciation which, if guided, may be led into a genuine development of talent.

Many parents feel that if the child has no marked musical ability, it is

a waste of time to give him any musical training. This is surely a mistake. There are two kinds of enjoyment of music. One is that of the performer and the other is that of the listener. An understanding and appreciative listener is indispensable for the development of good performers and a child can become so habituated to good music that it will be a real pleasure to him in later life. It is now possible for a person, who has no skill in producing music himself, to build up a good collection of gramophone records or to enjoy the better sections of radio programmes, when some of the finest music of the world is broadcast.

AND NOW I SEE

Turning now to the visual training that may be given in the home we find that it follows somewhat the same course. The infant's eyes do not respond as quickly as his ears and it takes some time for a child to understand a picture, yet quite small children are keenly aware of colour and it is a great pleasure to them. A little, mentally defective girl, I know, who is not able to speak at all and has very limited understanding, nevertheless appreciates colour. She shows more signs of pleasure when wearing certain frocks than others and she has even been known to insist in her inarticulate way on matching the socks and the frock. This sense of colour is perhaps the greatest height to which her limited abilities can climb. Children who are more richly endowed have even a keener sense and delight of colour and, later, of form. Those who have been surrounded by harmonious colours and artistic surroundings naturally develop good taste. This has nothing to do, of course, with the amount of money involved. A pair of curtains of the cheapest cotton material may be more artistic than curtains made of far more costly silk. Cheapness and nastiness do not necessarily go together. We find then that as with hearing, a child receives a large number of unconscious impressions in the early days of life.

A useful exercise for an adult to practise is to think back over his own childhood and recollect the things with which he was surrounded in his home. He will probably be able to remember the pictures on the wall and many objects around the house, some of which he undoubtedly remembers because of the pleasure they gave his sense of sight, e.g. I still remember with enjoyment a large copper kettle we used to have in our kitchen. It is of the utmost importance, therefore, that we should surround our children with things that give pleasure to the eye and that ugliness should be excluded as far as possible. Some of the most beautiful objects—sometimes indeed the only beautiful objects in a home—may be the cooking pots and water-pots, which are usually of lovely shape and shining with cleanliness.

CREATIVE ART

A time will come, however, when the child will want to express himself by his attempts at art just as much as by attempts in music. Some children seem to be both musical and artistic but others prefer one mode of expression to the other. In recent years a great deal of attention has been paid to children's free expression of themselves in art. Children who are unhappy and troubled

often work out their distress in their paintings. In some cases, art indeed becomes a therapy for the child. The significance of children's art in India is just beginning to be understood. In Madras, under the guidance of Miss A. G. Helliar, who is now devoting herself entirely to the development of art among children, and in Bombay, where a few people are interested, a beginning has been made. Parents could do much more in giving children an opportunity to paint or model. Once more, we are now able to get quite cheap brushes, and bazaar colour-powders are good enough when mixed with little water. Even an old newspaper may serve as a background on which a child can splash away to his heart's content developing his own concepts of the world about him and the inner world of childhood which is so mysterious to most adults.

Will these children become artists? In most cases, probably not, but they will be much happier children as they are growing up, exercising as they do, a free and full expression of their emotions in creative forms. Again, as in the case of music, they may develop a genuine appreciation of what is good and lovely in colour, line, and form, and thus help to encourage and develop the genuine artists among us.

Some happy families find it possible to share their music and even develop family orchestras or singing groups. Other families turn their artistic interests into colourful and fascinating handicrafts which again become a family occupation. Such a creative experience shared by the various members of the family can be one of the most rewarding experiences of their life together.

CHAPTER XVIII

THE USE OF AUDIO-VISUAL AIDS IN THE DISTRICT

JAMES E. MCELDOWNEY[1]

DISTRICT work has a charm all its own and this is especially true in the use of visual aids. In a certain village in C.P., Rev. C. Reynolds was using an amplifier to tell a group of villagers about Christ. A rather prominent man began to ask questions. Mr. Reynolds called him forward and asked him to speak to the people and tell them about Hinduism. He told the visitor that he had been telling them about Christ and now the visitor could tell about his religion. This surprised the official and when he heard his voice over an amplifying system he was led to deliver a very effective sermon. He highly commended the Missionary and his helpers for their Christian service and called on the people to serve each other and their nation with the same spirit the Christians were showing.

District work provides every kind of experience and because it is so varied and rich, you who read this article will keep wishing that I knew of your experiences for they would add color and charm to this rather technical article.

There are many in India who have made a beginning in the use of Audio-Visual aids on the district. Some have specialized in non-illuminated aids and some in illuminated pictures. Both are essential for a well-rounded programme.

NON-ILLUMINATED AIDS

Non-illuminated aids, which include the blackboard, maps, pictures, felt-o-graph, etc., can be best used in the day-time. Illuminated aids, such as slides and moving pictures, require the dark. One reason why more attention has been given to the latter is because very often people are busy during daytime and meet only at night. This is somewhat contrary to practices among other worshipping groups in India although certain ceremonies are conducted at night. However, non-illuminated aids should be extensively employed for day work. They can be used in home visitation, religious talks in schools, smaller group meetings of men, women, youth and children.

Those who saw Dr. Gladys Rutherford give her demonstration at the Landour A–V Conference in 1949 caught a glimpse of how certain aids can be very helpful on the District. The picture folder is an example of such a non-illuminated aid. It is not only simple and effective, it is relatively inexpensive or can be made easily. Take a sheet of strong paper, five inches wide. The length depends on the number of pictures in the series. Divide

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the paper into sections four inches wide, and into those sections draw or paste a series of pictures illustrating the story or message. In order to make it into a folder, hold down the first picture with one hand, put the second picture (pasted on the strip) face down on the first picture and fold it down. The third picture is folded back to back with the second, the fourth is made to face picture three, and so on until the whole strip is folded. This forms a compact folder which opens for each two pictures without unfolding and refolding the rest. It is small enough to carry and when the visitor goes to the home she can use it effectively with a small group. Larger size pictures mounted the same way hold the interest of larger groups.

Very often Western pictures seem strange and complex to village people. Line drawings are very effective. Those who develop good sets of pictures should have them mimeographed and make them available for others. Colored Sunday School cards have been used by some on such folders.

Other workers prefer to make a roll instead of a folder. Mounted in this way the pictures are rolled from one end of the strip to the other as the message is given.

The Felt-o-graph or Flannel-graph is also valuable in District work. Fortunately, this subject is fully dealt with by Mrs. Duerkson in this book to which the reader is referred.

PUPPETS

Puppets are always interesting. Mrs. King of Leonard Theological College has made and used them extensively. Students have formed the faces out of clay and after they are dry they have painted them and given them features. The body is made of cloth and properly dressed. Details can be gotten from Mrs. King or her successor, Miss Theodora Bryce. A cross-like wooden frame, held two or more feet above the puppet, is used to anchor the strings controlling the puppet's actions. Strings from the arms are fastened to the ends of the short cross-piece and strings from the feet are attached to the longer strip. In this way strings do not get tangled and actions can be controlled.

Care should be taken to select stories which are truly significant and the script needs to be worked out carefully. Skill in manipulating the puppets increases their value. Often unnecessary movements detract from the story but puppets can be helpful. They can be used at night with better results than many other forms of non-illuminated material. Actions are more easily followed in poor light than details of pictures can be seen.

In similar ways, the blackboard, clay models, sand tables, shadow characters, artistic drawings and other aids may be used. You will note that I speak of them as "aids". It would be well for us to comment further on that subject before we take up the illuminated pictures.

In this chapter we are dealing with "aids" or materials which will help in imparting spiritual truth. No matter how fine our equipment and materials, they should never become *the* important thing. The intimate, personal relationship between speaker and people needs to be maintained. During the daytime, that is easier than at night time when the speaker is not seen. The voice crying out of the dark explaining the pictures should be clothed with

compassion for the multitudes so that people will seek out the speaker for further information and ultimate commitment. Let us remember that visual aids should never turn a Church service into a *tamasha*, nor should they be used to attract people under false pretences. Clear announcements that religious pictures are to be shown, to which all are welcome, will usually bring fine crowds of interested people, and, if the commentators do their work properly, crowds will be attentive. I have never had an unruly crowd. A hearty laugh, now and then, is all to the good, provided the laugh comes in its proper place.

ILLUMINATED AIDS

Having expressed this note of warning, let us consider illuminated pictures and public address systems. There are two types of picture aids, the still pictures and moving pictures. Public address systems (PA systems) or amplifiers are often an integral part of this form of presentation.

Basic equipment for still pictures include a projector, slides or film strips, and adequate light and a white surface to reflect the light.

THE PROJECTOR

The type of projector is determined by the kind of light available. A Petromax SVE Model "International" Projector (Society of Visual Education) and the Besler projectors constructed around a petromax lamp are both being used in India successfully. The petromax lamp can be removed from the projector for other uses and since the equipment is relatively light it can be transported easily. Most people are acquainted with the difficulties in operating and maintaining petromax lamps, but otherwise they are quite acceptable.

Some will find electricity more convenient. There are a number of projectors which can be used with batteries or city electricity according to the need. The Viewlex projector is wired for either a 6 volt current or higher voltage. All is needed is a change of bulbs from 6v to either 110 or 220 volts according to whether it is used with a generator or with city current. Bulbs can be used with both direct or alternating currents. The SVE electric projector requires special wiring for battery use.

In many ways the Viewlex is more acceptable. Bulbs for the Viewlex require about half the current needed for SVE bulbs but on measurement, the light output is not much less. Whereas a 70 watts 6 volt SVE bulb drains a battery in four or five nights, a 35 watt, 6 volt bulb for the Viewlex will last for eight or ten evenings. Those who connect the projector directly to their car battery find that the SVE drains away the strength of the battery more than can be restored by average use of the car. On the other-hand, the Viewlex does not put too heavy a load on the battery unless it is used too frequently or for too long a time.

FILM SUPPLY

The film supply is an important matter. Many missions and churches are building up small libraries of their own. The National Christian Council Libraries are gradually adding new subjects, both educational and religious.

Rev. Bob Marble of Bihar has found that simple line drawings or slides which are not complex in their content tend to bring better results than the beautiful, highly colored Cathedral films or Western paintings. The chapter on 35 mm. slides by Rev. C. P. Heins should give valuable help in planning programmes with your still projectors.

A suitable white surface for showing the pictures is also important. A white-washed wall will serve if a screen is not available. Beaded screens reflect more light than rubber mat screens but they give poor reflection at wide angles. A white cloth, tightly stretched, can be used although it lets a lot of light get through. But where equipment is carried on cycles or by hand, either a white wall or a cloth will often be resorted to.

There is a lively debate in some circles as to whether still pictures are more effective teaching aids than moving pictures. As Rev. Fay Livengood points out, the movies draw a larger crowd but Rev. Ted Essebaggers feels that still pictures give so much more time and teaching opportunity that he will soon turn almost exclusively to use them for a time. Possibly he will end up doing very much the same as Rev. Arthur Dobson has done. Particularly for his religious instruction he shows slides one night and on the following night the same subject is dealt with in movies. Considerable is gained by such a teaching programme. But movies are here to stay and more and more they are being effectively used in District work. The chief hindrances are the costliness of the equipment, lack of trained personnel to care for and operate the equipment, and the lack of adequate light supply. Undoubtedly missions should take steps soon to cooperate in securing and using equipment so that all three of these difficulties can be overcome.

The projection of moving pictures has not been very successful using the battery as a light supply. A hand turned projector has been used by Rev. Fay Livengood in Jubbulpore, while Dr. Donald Ebright has used a Kodascope fitted with a special DELCO motor in North India. Neither machine has gained in popularity.

VALUE OF GENERATOR

Electric motive power is therefore the solution and a portable generator is a valuable addition to the equipment for a district. Such a generator enables one to go into the remotest villages. Voltage output and weight are two very important factors to consider in selecting a generator. The Homelite generators are light and have given good service, though they need constant cleaning for perfect operation. The voltage will depend on the supplementary equipment for which the generator is none too large. Mr. Vaugh of Allahabad, who is building mobile A-V units, is installing three and five kilowatt generators. Such equipment is all right for permanent installation but is unsatisfactory for portable service.

A well designed box which has room for spare wires, bulbs and other equipment, and protects the engine, enables one to transport the generator on bus, bullock cart or train without damage.

Such generators can be used for the Viewlex, movie projectors or for

amplifying systems and they are in almost every way superior to petromax or battery illumination.

SOUND

Wherever moving pictures are shown a crowd gathers. In order to give a running commentary and be heard by all, a public address system (PA system) or amplifier is needed. Sound projectors can be used either for sound film or PA systems. There are important differences in volume output of different projectors so the reader is urged to consult competent authorities before purchasing his projector. Whatever projector and amplifier he may choose he should have it thoroughly tropicalized at or he may have constant trouble due to dampness here in India.

Some may decide to use a silent projector. Only silent film can be shown on the silent projector whereas both silent and sound film may be shown on sound projectors. Rev. C. H. Smiley has used a silent projector equipped with 300w bulb powered by a 500w Homelite generator and reports that the equipment has been very satisfactory. However, after he used my amplifying unit along with his silent projector for a time, he commented that an amplifying unit is a "must" in district work. He used the amplifier not only to explain the movies but for large crowds attending religious services during the day.

Just what equipment is it advisable to have? What is more economical to purchase and most satisfactory to use? Though both combinations are available to me, that is, the silent projector accompanied by a good amplifying system, and a sound projector, I use the sound projector very much more often and I recommend it for those planning to buy new equipment. It requires a slightly larger generator but the larger generator (1000w or 1250w) is relatively cheaper for the extra amount of electricity it produces when compared to a 500w generator. A sound projector does not cost more than the combined cost of a silent projector and PA system. It is a more compact unit and easier to transport.

A spring driven record player with a magnetic pick-up arm and a small supply of records can be used with either amplifying system effectively. A record player with the ordinary pick-up arm would be useful where there is no electricity but as yet the number of Christian records are soo few that little general advice can be given on the use of this equipment.

We have already made reference to the screen. A word of warning is in place. Be sure that the screen is well anchored lest during a show your picture suddenly disappears into the night when a sudden breeze gives wings to the screen. Trees or goal posts are effective supports to which the screen can be securely tied.

The film supply has already been referred to. Much, however, could be written on what constitutes a suitable programme. The religious film should have a significant place in most of our programmes. In showing to the general public it has been the common practice to show one or more educational or general interest films along with the religious film. Pictures on health or

informational films are satisfactory. When the long film, "The King of Kings" is shown, there is little time for other films.

Reports which have been received show that films produced here in India have advantages over those from the West even though the latter may be professionally produced. The Prodigal Son and the Good Samaritan produced at Leonard Theological College will soon be followed by other religious films made in India. Rev. Arthur Dobson tells that a film made for his Mission by Rev. Henri Ferger which shows the influence of Christianity on certain groups in Central India makes a very fine impression on villagers in his area. It comes out of India and it speaks to India.

"KING OF KINGS"

Much discussion has centered around the film, "The King of Kings". Everyone who has used it and has replied to my enquiry, reports that it makes a profound impression on the more educated Christians and greatly helps the less educated. The total impression on non-Christians is gratifying. A number of copies are available in India at nominal rents.

Catalogues of religious and educational films are available from the National Christian Council and elsewhere in this book you will find information which will help you find your most acceptable source of supply.

Most sound films are in English. It has been a practice long advocated that in using sound film the sound tract either be turned off or turned down and the commentator speaks in his own language explaining the film. This makes it necessary to preview the film. This is also a good practice for silent film as it acquaints the commentator with the film. But Rev. Leonard A. Crain discusses this problem.

TRANSPORT

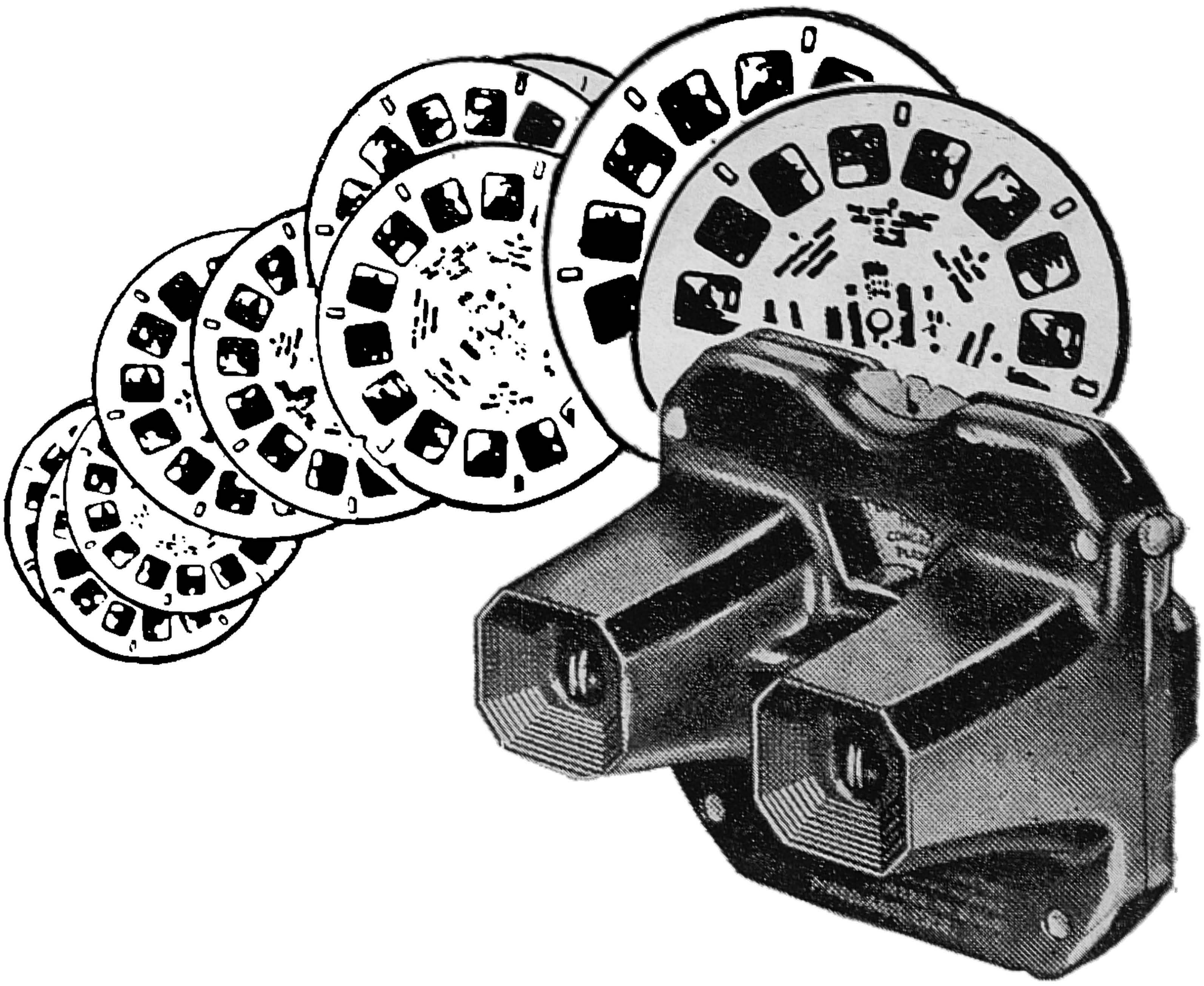
Transportation of the numerous machines which form the A–V unit becomes a problem. With the help of able assistants they can be taken by train, ox-cart or bus. It is much more satisfactory to have one's own car or small truck but that brings us to the study of mobile units. Your attention is called to the chapter on that subject by Rev. Ted Essebaggers. I may say that I have done rather extensive touring for a number of years without a mobile unit but it would be a most welcome addition to my present set-up.

There is real need today for co-ordination in the A–V District programme. In two ways particularly is this needed. First in the training of people to use these aids and particularly the use and maintenance of more expensive equipment. How unfortunate it is to have good equipment and have it ruined by over-confident unskilled operators. There are a number in India who could give real assistance to the less qualified. Such training at specific centres is needed.

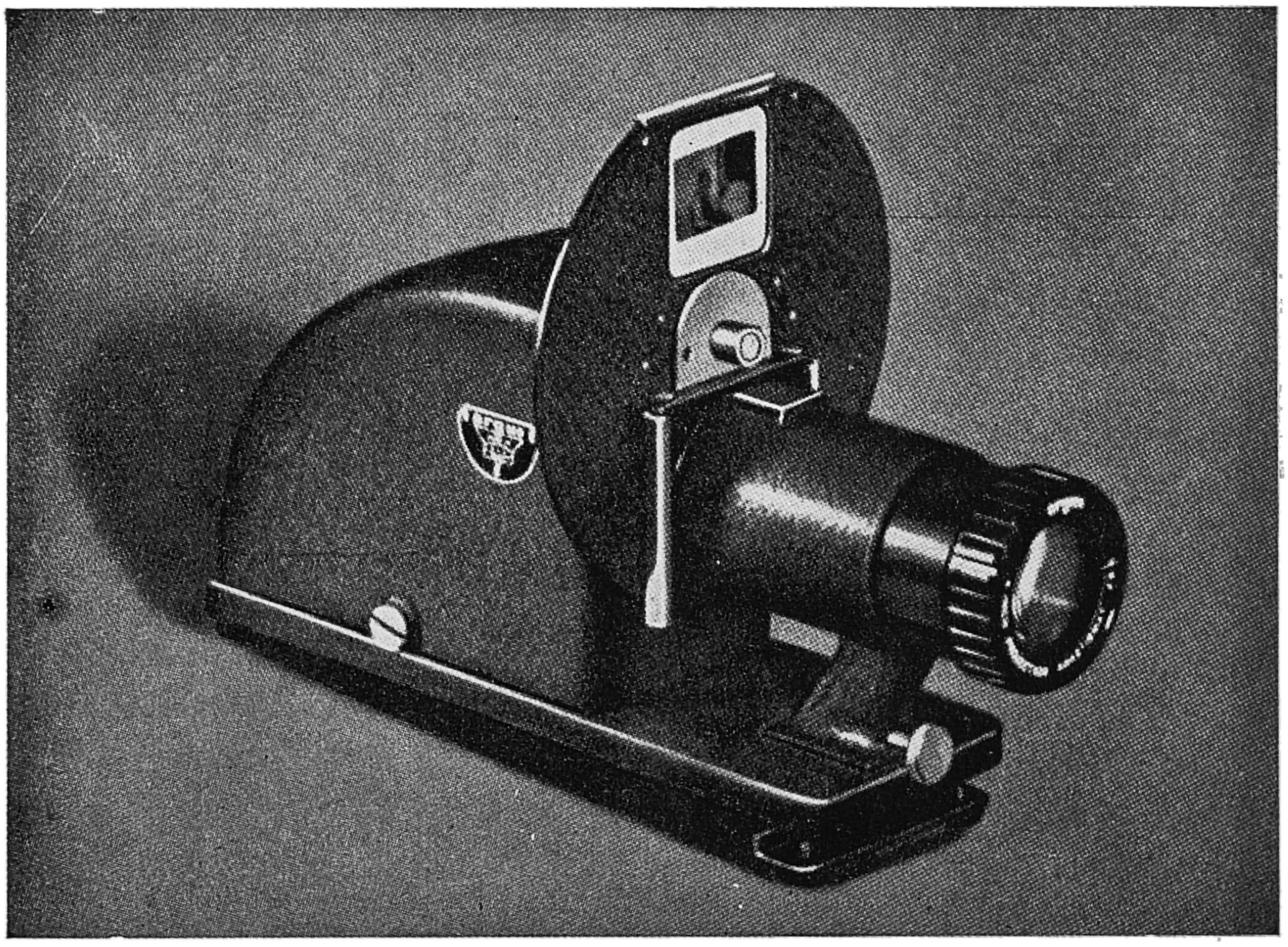
Secondly, much long-distance travel could be avoided through a co-ordinated programme and many who cannot hope to own a fully equipped unit of their own might join other missions in their own area to equip and operate a cooperative unit. Is it too much to look forward to the time when under the

direction of the National Christian Council, strategically located centres will be set up where the more expensive equipment will be made available to all missions within a given radius and a skilled operator will operate and maintain the equipment under a carefully worked out schedule? When that time comes we will cease crossing each other's trails hauling heavy equipment to our remote centres which are likely very much closer an A–V centre of another mission.

Christ ministered to the whole man—his body, mind and spirit. We who are His followers would not hesitate to employ helpful materials which will continue that ministry. There is real joy in the realization that we have had a share in pushing back the dark night of ignorance to let the glowing light of truth shine through. To help broaden a man's mind, to give depth and height to his spirit, to release him from the shackles of a limited past and fill him with courageous determination to live a useful life under the impetus and strength derived from God, makes us rejoice. These experiences are ours on a vaster scale when we rightly employ audio-visual aids on the District.



THE VIEWMASTER STEREOSCOPE AND DISCS INCLUDE RELIGIOUS AND EDUCATIONAL SUBJECTS



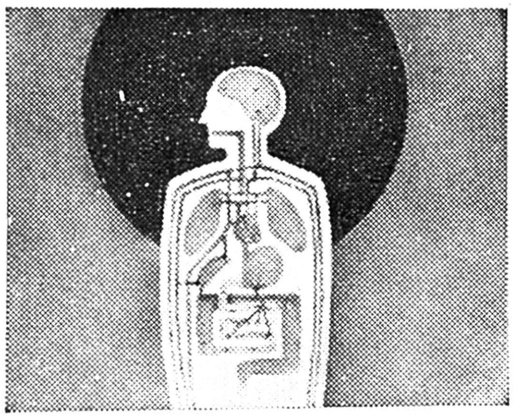
ARGUS SLIDE-STRIP PROJECTOR PA-100

Courtesy: Educational Films of India, Bombay

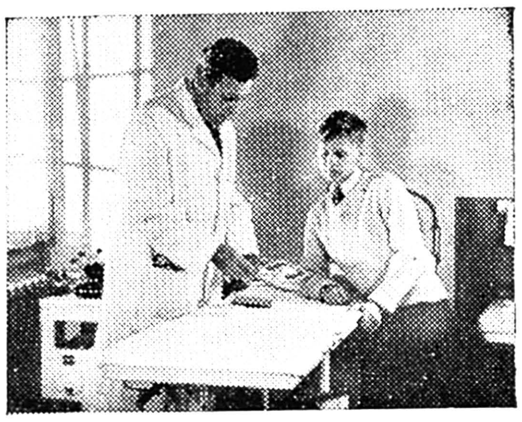
ENCYCLOPAEDIA BRITANNICA

FILMS BRING THE WORLD TO INDIA

KINDNESS EDUCATIONAL FILMS OF INDIA

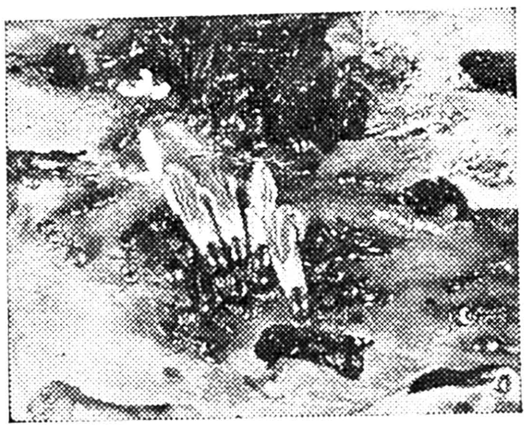


ALCOHOL AND THE HUMAN BODY[1]



THE DOCTOR

ANIMALS GROWING UP



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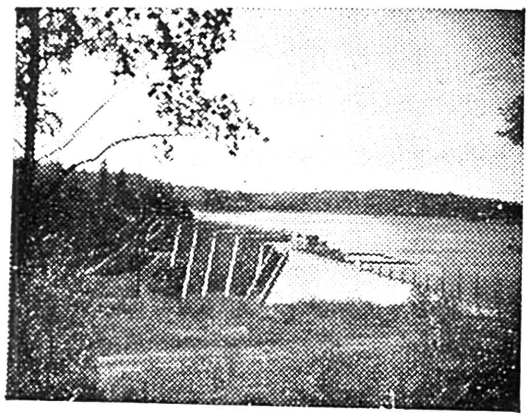
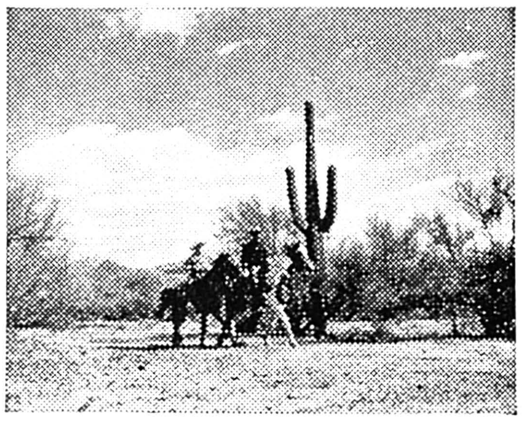


WATER POWER



A RIDE WITH COWBOYS

[1] Synopsis of Alcohol and the Human Body

Collaborator; Anton J. Carlson, Ph.D., M.D , *The University of Chicago.* Graphically explains the specific effects of ethyl alcohol on the human body, describing the characteristics of alcohol and how it is made. Traces the course of alcohol through the body until it either oxidizes or escapes, and shows the effects of alcohol on the brain. Dramatizes the case of a problem drinker, including treatment. For high school and college HEALTH AND HYGIENE, BIOLOGY, general science, physical education, sociology, psychology, and for adult groups.

CHAPTER XIX

VISUAL AIDS FOR HEALTH EDUCATION

GLADYS RUTHERFORD[1]

IT is the aim of Public Health workers to get people to understand the meaning of Full Health, how it can be achieved and how maintained. It is necessary to understand the Causes of Ill-health, and the ways and means to get rid of these Causes. People need to learn hygienic habits, both in personal life, and in Community life, and need to understand what will naturally happen when these habits are not observed. And what about Nutrition? In these days of food shortages and the recognised need for Vitamins and "protective foods", it is necessary to understand what a Balanced Diet means, and in case of shortage of some commodity what other thing might be used in its place. Deficient diets are frequently short in quality rather than quantity. The Balanced Diet contains all items necessary for body building, for energy supply and for maintenance of certain defences against enemies.

A GREAT NEED

Quite frankly, effective ready made Visual Aids for this teaching do not exist. So the health worker will need to get busy with scissors, paste, flannel (or its equivalent) and colours and make his own outfit, so that he can make the facts and ideas come alive for his audience. (Should the group that LOOKS be an OPTIENCE?)

Those of us who have seen how vivid and dramatic Bible teaching can be when aided by flannelgraph, khaddar kraft kut outs, garha-taswir, suedegraphs and what not, are convinced that this method is a very valuable one. The essential technical detail is the fact that two rough surfaces do not slip on each other. That so many names are in use just goes to prove that *any* "non-slip" material can be used, both for the Backcloth and for pasting on to the backs of the cut-outs. For further details on technique I would refer you to Chapter 9 by Mrs. J. R. Duerkson.

WE NEED PICTURES

And now, where can pictures be got?

There is a little book by Mr. Brayne called "In Him was light", which is an excellent handbook for the village worker. A sheet of cut-outs has been issued to go with it and may be obtained from the Mission Press, Jubbulpore, C.P. This will help you to begin an outfit, but you will be disappointed that as pictures they are nothing like as good as the Bible pictures. The figures are mostly far too small. But you will get the idea from them, and will find

[1] Dr. Gladys Rutherford, M.B., Ch.B., D.T.M. and H., India Village Service, Kasganj, U.P., is interested in Health Education and the training of village workers in Preventive Measures.

the set of noxious insects it contains very useful. For colouring use crayon or poster paints which are not transparent and can be brighter than ordinary water colours. Also the "Mongol" coloured indelible pencils worked on damp paper give very brilliant effects. Assemble the facts you want to teach. You will realise that you have no ready-made Story either, as the Bible teacher has. That has to be made also, and you need names for your figures. Make them talk, and with a little practice you can work up little dramatic dialogues. Have one scene follow another, make people come AND go. Do not have everyone on the stage at once. Be sure of your Villain, e.g. the Fly or Mosquito and know beforehand what damage she will do and what the results will be. You can have two villages contrasting. For instance in Afatganj flies are a menace and they proceed with their work unchecked. Babies die, children have sore eyes, men and women also become ill. Remember the sequence filth, faeces, flies, fingers, food, and so on to typhoid, dysentery, cholera and eye troubles. Then in contrast you can have Hoshiarpur which has been cleaned, the refuse has been buried, latrines have been made and their use taught and practised. The fly finds she cannot live here comfortably; there is no place to lay eggs. She just lies down and dies. There is no more need for trap or swatter. Last scene, the figures now are dressed in clean bright clothes and have brushed polished hair and happy faces. They are free from disease and free from FEAR of disease.

ADD A WITCH

You can vary this story by making some dragons and witches and demons. Cut them out of black paper and mount them on cloth. They will help to make visible some of the enemies and villains and "Bhuts" that the people are afraid of. If you keep old newspapers, look at Sunday "Statesman", September 11, 1949, and find a story by Sheila Auden entitled "Dreadful Dragons" It is exciting and dramatic and there are pictures of the dragons and of witches. You might cut them straight out of the newspaper, or trace them or better still redraw them somewhat bigger. For insects and small 'bhuts' it is effective to paste them on a piece of cardboard or cut straight out of cardboard and fix a long piece of wire to the cut-out. Using the wire as handle you can now make the fly fly round in a most realistic way, instead of placing it fixed in one position. So you can show the quick movements of flies and mosquitoes in contrast to slower movements of humans, and you can emphasise how easily and quickly the fly can transfer germs from the muck heap to the exposed food, and how the mosquito goes from the pool of water to the house at night. A night scene can be made by having a black or dark blue back cloth and a silver moon. The mosquito comes flying on and says "Hum – – – m" and just stops her little song for a second or two while she bites some one, and then on with the song again while she flies back to her pool or seeks some dark corner in which to hide during the day.

CUT THE NEWSPAPER

For further sources of figures keep a watch on newspaper advertisements and magazine pictures. Cut them out, or trace them, colour and mount them. If it is not a complete figure, cut out what is there and paste it on to a larger piece of white paper and draw the missing bit. This is not very hard to do if the head and shoulders are ready done. Posters can be used in this way. Posters have been available for many years and they contain good ideas, but not always set out in a way that attracts. Posters which are hung up and left too long always lose their effect. Get a set of posters from Red Cross Society, New Delhi, or from the Hygiene Publicity Depot of the Provincial Government, and cut them out. You will make a good collection of figures in this way. You may not like the colours of the posters, but you can touch them up with paint. I found one with a good group of women and children, but they all looked about to die of acute jaundice. The surface of the paper was glazed because printers ink is oily. I used a little talc powder and powdered their noses and gently rubbed the surfaces I wanted to paint, and found that water colours would work, and so the group revived with a little rouge and lip-stick. Try it. Another useful suggestion: When you get a figure that pleases you make more than one of it. If possible have complete sets of figures for each story or idea. Whenever you want the same figure to appear in two stories make two of it. You can trace the second one. And also sometimes use the reverse side of your tracing and so make your figures face the other way. This is useful when you stage a dialogue you must have your figures facing each other and not both facing the same direction. Architect's linen is useful for tracing and is durable and can be coloured. It will also occur to you that blotting-paper can be used as a non-slip material. A good quality blotting card can be drawn on with crayon which does not run (Mongol crayon as mentioned above). There are great many Government publications, booklets, leaflets, posters, etc., from which you can get public health facts and ideas on what to teach. This article is trying to concentrate on the HOW of making it effectively visible.

IN THE VILLAGE

For Village Health Education one wants to teach during the day time without having to use electricity or any kind of projector. To meet this need, in addition to the garhataswir, India Village Service has evolved *the Paper Strip.* Black Stick Men called JETS have been used. (They are Jet Black and have nothing to do with bombers!) Series of Cartoons have been drawn to illustrate causes and preventions of common diseases. Each "Exposure" shows one clear idea with little or no scenery or shading, (which makes photography so difficult for a villager). Sets on: (1) Malaria, (2) Itch, (3) Tuberculosis, are now in print and can be had from North India Book and Tract Society, Clive Road, Allahabad. Printed on paper and rolled up they can be used as the Jews used the Rolls of the Law. You can roll up a couple of magazines into rollers and attach the paper strip at each end to a roller. Then use by showing one picture at a time and roll up one end as you unroll

the other.' Wooden rollers can be used and fixed into a wooden box or frame. It is a simple toy and readily attracts a group and can be used in a courtyard or in a crowded fair ground. At present these Jets are only available in black and white, but may be hand coloured with crayon or paint and made more effective. Four more subjects: (4) Flies, (5) Hookworm, (6) Cholera, (7) Well water, will be ready shortly. For those who have electricity and a film-strip projector, these same Jets are available as a Film-strip from Dr. Ebright.

"VEGETABULL"

There is an English poster called "Vegetabull" which shows a group of vegetables so put together that the whole resembles a bull. It is published by the Ministry of Food. We have used this poster on the flannelboard, backing it with garha and cutting it out. The picture can thus be built up gradually and only after a minute or two does the optience realise that there is an animal! The joke has only been half translated so far into "Vegetabail". Having set out this picture on the board, you can then make the bail charge! Put his head down and his tail up and move his legs and he will go into action. This makes an effective lesson on vitamins.

TEACH THROUGH GAMES

And lastly there is the game of *Snakes and Ladders.* If you can find enough items of DO and DON'T in any subject you can use this game to help others to memorise them. For instance about food. Give ten ladders and 10 snakes on a board of about 100 squares, the snakes should have their heads on higher squares than the tips of their tails, draw at the bottoms of the ladders: (1) tomato, (2) carrot, (3) orange, (4) cabbage, (5) cauliflower, (6) egg, (7) peanut, (8) glass of milk or cow, (9) any other nut or seed, (10) any other green vegetable or fruit. Then at the heads of snakes draw: (1) fly, (2) cockroach, (3) rat, (4) weevil, (5) polished rice grain, (6) fire with degchi (representing overcooking of greens) and any other things that contaminate food or destroy it. The game is played by two or more players each having a coloured counter. Dice is thrown in turn and the player moves his counter the number of squares indicated by the dice. If he happens to stop on the head of a snake he must descend to the tail, if he stops on the bottom of a ladder he can go to the top of it. The player reaching square 100 first is the winner. This game can be played by children and can be taught to hospital patients and relatives who begin to understand which items help or hinder healthy life. You can set out a game on sanitation and hygiene in the same way.

Philco Model 1724—"All Service" Radio-Phonograph Combination.
FM and AM radio — Three Speed — All Record Phonograph

P. Samuel of the Agricultural Institute, Katpadi, uses Visual Aids at a Rural Exhibition

The Agricultural Institute, Katpadi, transports an Audio-Visual Unit over village roads

CHAPTER XX

AUDIO-VISUAL AIDS AND RURAL RECONSTRUCTION

J. J. DeValois[1]

I HAVE just reviewed the history of agricultural education in the United States from 1785 to 1925 in order to get a perspective of the use of Audio-Visual Aids in this connection. The subject years ago of course had not acquired the dignity of such an impressive name as "Audio-Visual Aids". I have however been impressed by the extensive use of this means of education for the past century and a half in an attempt to reach the farmer and his family in the most effective and telling fashion. This history dating from the close of the Revolutionary War and subsequent independence for the American nation seems to have its parallel today in India following August 15, 1947. The pages of this history indicate how the rural leaders were straining every nerve to find the most suitable educational approach to the farmers of the nation. Again and again I read how they resorted to the use of charts, graphs, and pictures at first followed by lantern slides, movies and other more modern equipment. Movable schools were organized and equipped. I still recall visiting the special railroad train that visited our small town in the Middle West when I was a growing lad. These trains were equipped with all sorts of visual aid material—live animals, pictures, models, graphs, charts; anything to stimulate the visiting thousands to better, more modern means of life and living. "Seeing is believing" was a popular slogan in those days. Congress appropriated $100,000 for the American Agricultural Colleges and Experiment Stations to put on a collective exhibit at the Louisiana Purchase Exposition at St. Louis, MO. in 1904.

While in America last year (1948) I was again impressed with the growth of this mode of education and the growing and extensive use of visual-aids in all forms of rural advancement. The teacher of Vocational Agriculture; the Home Economics instructor; the 4H (Head, Hand, Heart, Health) Club leader; the County agent; farm magazines and periodicals; Rural Fairs and Exhibitions all seem to try to outdo each other in exploiting what they have learned to appreciate as one of the most effective means of conveying new ideas to the public. I am sure that the phenominal development of rural life in America is in no small measure due to this popular and effective means of educating rural people.

I came to India with this background of visual aid in mass education from my local farming community, agricultural college and later as a teacher-demonstrator working with farmers and rural youngsters. We have as a consequence used this teaching aid extensively in the development of our Katpadi

[1] Rev. J. J. DeValois, B.Sc., of the Arcot Mission of the Reformed Church in America, Katpadi, North Arcot District, is Principal of the American Arcot Mission Agricultural Institute, which he established in 1920. He is on a number of Government Committees on reconstruction.

Agricultural Institute and its Extension programme in the villages. We spent considerable time and effort through the years making charts, graphs, and exhibits to illustrate and tell a story in an attractive fashion. We have held Rural Fairs from 1929 to broadcast these ideas at large gatherings. The Annual Katpadi Fair Exhibition, the largest one we sponsor, has grown consistently through the years attracting an estimated 20,000 attendance last year. We brought out a portable generator, moving and still slide projectors, film strips, slides, and movies loud speakers, etc., in 1938 that never failed to attract crowds by the thousands. Our 1939 report includes this paragraph:

"We have given over a hundred programmes with our Homelite generator furnishing current for the film-slide projector, 16 mm. Movie, Webster amplifier or general lighting for an exhibition. This equipment has been a great stimulus for village programmes. We have shown the ten reel presentation on the Life of Christ, the famous 'King of kings' film, 45 times to an estimated audience of 55,000 people. The Tamil explanation and interpretation was always given by one of our Indian staff and by using the amplifier crowds of 5,000 or more heard and saw this dramatic message of Jesus who came 'to seek and to save that which was lost'. If we had the staff and the time, we could go out every night and give this message to the hundreds and thousands who freely gather."

I mention these facts to show that we know whereof we speak; we are only advocating what we have found most helpful in our rural programme through the years.

We have found that our Jeep with trailer is an ideal means of conveyance in reaching the village with our equipment. The Jeep, follows in the ordinary bullock cart track and can go places inaccessible to the wider width car. We used a lightweight Home-Lite Generator operating with petrol-kerosene mixed with lubricating oil for several years. We did not find this air-cooled engine too satisfactory. It was not dependable and caused trouble on a number of occasions when we had to disappoint large audiences. We have found it very desirable to have a second string to our bow to use in emergencies so that we can always guarantee some kind of a programme even if our main feature fails. We can fall back on a petrol operated film-slide or film-strip projector or use an attachment to the 6 volt battery of the Jeep if the generator fails to function. This is very important. People must be assured that a programme will be given when such is advertised. We now have a 1500 watt 4 cylinder Kohler generator that is giving us excellent service. It is a unit designed to operate with automatic switches and controls in isolated places like lighthouses with only weekly supervision, so is designed to be as "Fool-proof" as possible which is very desirable. The unit weighs about 600 lbs., but can be managed in a Jeep trailer without too much difficulty. We strongly recommend having a reliable generator which really is basic to conducting programmes in non-electrified villages which still are the rule in rural India. We find that a generator of this size and dependability is adequate for lighting for meetings and exhibitions, can operate our loud-speaker, wire recorder and phonograph turn-table, radio and other electrical equipment in a satisfactory manner.

Good equipment is very desirable and necessary but is only what its name implies, *i.e.* "Audio-Visual Aids". It does not do the whole job by any means. The human element is still the important factor. Good programmes must be well thought out and prepared for. No two audiences are alike. The squad operating a portable unit must be very versatile and able to meet changing situations on short notice. Good speakers, good singers and if necessary good interpreters are very necessary. People presenting messages to rural people must know and understand rural life. This may sound very trite but it is surprising how often this basic factor is not fulfilled. I know from experience how we farmer boys used to know almost at a glance if the visitor was a theoretical "College Dandy" or an experienced person knowing and appreciating the problems of the farmer and his family. The villager in India is very patient and usually a real gentleman in making allowances for a lack in this regard but is intelligent and observant and can only be influenced for good by workers qualified to instil confidence.

Granting that we have the necessary equipment and personnel suitable teaching aids is the next requirement. There unfortunately is still a great dearth of such available in India. One cannot but be envious of the quantity and quality of such material in Western countries. Educational libraries and services exist by the score to provide literature, teaching material and entertainment features, all of which are essential for an adequate service. India is on the move in this regard as she is in many other ways but still has a long way to go. The rural worker in India therefore has to depend on his own resources much more than his counter-part in Western countries. Mission agencies should ever be on the alert to be in touch with and ready to use what is available in India. We have always found Government agencies only too eager to co-operate with any agency to use materials they have for rural development. Missions usually have a better knowledge of the people and their needs than do Government agencies and consequently are in a better position to carry the message down to the "grass-roots" in the village. Government agencies can provide the materials; Missions should be able to provide consecrated, interested personnel. A combination of the two is to the advantage of both. More and more suitable material is becoming available in India itself which is absolutely necessary. A villager may be entertained by a Cinema picture on American agriculture but will benefit little relatively speaking. Programmes must be in an Indian setting and adapted to Indian village life. Much could and should be done by Missions in a joint effort to produce Audio-visual aid material of this type for promoting the more distinctive kinds of work their programme requires. This takes time, experienced personnel and finances and makes joint Mission Church action essential.

The Church in India is a rural Church and promises to be such primarily for many years to come. Amazing developments are taking place in cities and among the so-called upper brackets of society in material things. In how far are these influences reaching the villager and if so is he getting the best or the worst, of these influences to change his outlook on life? The Church should be more alive to this tremendous challenge. The Cinema is today

reaching the remotest village with its disintegrating and often evil influence. Is the Church utilizing its opportunity to counteract this situation with a wholesome, educational inspirational message through adequate and wise use of visual aids as its proven value demands? This is THE day of opportunity in India. Let us not be found wanting in using these aids for spiritual as well as material development.

CHAPTER XXI

AUDIO-VISUAL AIDS IN THE SERVICE OF LITERACY

RUTH URE[1]

THERE are three stages in adult literacy work, and at each stage audio-visual aids can be of inestimable service. That this valuable assistance is largely missing at present is indication of the need for studying the matter.

THE CREATION OF ENTHUSIASM

The first stage is devoted to rousing public opinion. Potential organizers and teachers as well as the illiterate group must be stirred with interest and enthusiasm. Literates must become excited about their duty to teach, illiterates about the opportunities opening before them. Until a village or a town or a nation awakes to the possibilities and begins to ride the wave of enthusiasm, every effort lags.

WHAT CAN AUDIO-VISUAL AIDS DO?

1. Gather the people to be influenced. Nothing will draw a crowd as quickly as music and the rumor of movies. Any music and any amusing film will do for the starter. But someone really ought to work out some songs and recordings and some film plot which would lead up gently to the subject of the evening.

2. Convince of the tremendous value of literacy. Here speeches will actually accomplish much less than pictures, so audio-visual aids take priority:

(*a*) *Posters*: These have a proven value in motivation. At least three types have been in use:

(1) Posters which convince the illiterate of the practical benefits resulting from learning to read. Each poster presents a story, illustrated by one or more pictures. One such printed by the U.P. Government, shows the traveller at the crossroads, unable to read the signpost and thus ignorant of which way to go. Another shows a family in a railway station, who have been over-charged for the wrong tickets because they could read neither destination nor price. Others stress reading and writing letters, keeping ahead of the money-lender, etc. Mr. K. J. G. Sundaram produced a very effective set of posters based on Telugu proverbs, pointing in each case the need of literacy.

(2) Posters which convince the literate that they are responsible to impart their knowledge. These appeal to patriotism, humanitarian sympathy, divine command. "Share the light" is one of the commonest themes.

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(3) Posters which give comparative statistics. The Tract Society in Allahabad has recently reproduced graphic studies of the literacy status of India in relation to other countries, and of the provinces in relation to each other. Such posters should be used not only at rallies where they can be in the form of film-strips, but also scattered widely on village walls, in store windows, stations, schools—wherever they may make an impact upon public thought. Since they must be colorful, they are expensive, and need to be national in appeal, so that the lithographed picture can be sent everywhere for local insertion of the language needed.

(*b*) *Films*: These could combine the same range of purposes served by the posters into one connected and intriguing sequence. They need to be essentially human interest stories. A number of amusing dramas have been worked out to help the literacy cause; these might well serve as the skeleton for a film.

3. Persuade to action:

(*a*) Gramophone records, and

(*b*) Radio skits: Both of these should be spicy and very pointed. The records could well be radio recordings. On the other hand, the radio should make a direct appeal to potential teachers of adults, while the records should aim at motivating illiterates to learn.

(*c*) Films which show actual people actually learning are very persuasive. Nothing can as quickly make an illiterate adult believe in his own powers as seeing others just like himself really doing the thing he fears to attempt. A case study on the screen, therefore, of a man, or a woman, who before the audiences very eyes becomes literate climaxes the building-up of readiness for a campaign. C.L.S. Madras has been preparing such a promotional movie. Sound track is excellent but script should also accompany the picture. A very few simple titles should be written on the film as an example of the handiness of reading. Black and white films, costing only one-third as much as color, are quite adequate for this purpose.

THE PROCESS OF LEARNING

1. The lesson:

In the actual teaching of adults to read, magic lantern slides and film-strips are the aids needed. Travancore has such slides for the Malayalam lessons. Every area would find them valuable. The large quantities film-strips are not prohibitively expensive. These pictures should cover the first few lessons. To prepare them divide each page of the primer into reasonable portions. Have original drawings of these portions done on cardboard and filmed down to the desired size. It is essential that the slide be in every detail identical with the primer portion; otherwise confusion would result.

The great advantage of lessons which can be initially taught from a screen is that the hesitant illiterate loses his fear in a group, and begins to gain confidence because attention is not focussed on him individually. Also he is helped by competition in comparative darkness and by the memory of others

where his own fails. Most of all, it is more fun. And fun in work like this is a basic principle.

On the other hand, the great danger is that the individual will be lost in the crowd and will never learn for himself. Class work is not scientifically sound for an adult in a subject like reading, where he needs personal encouragement and the freedom to progress at his own speed. It must, therefore, be constantly kept in mind that these slides are aids and not the main process.

Lessons might be planned for the group for twelve chosen nights. These should not be consecutive nights, lest the edge of novelty wear off; but they should come within a compact period of time. Each night one whole lesson from the primer should be taught from the screen, thus involving several slides. Then each learner must be given his own primer in hand and must with a teacher, either immediately following the class session or the following day, have his own private lesson to ensure his independent learning. Accurate records of individual progress must be kept. Also that personal touch which makes impartation of literacy a spiritual experience must be maintained.

2. Corollaries:

(*a*) A great many more people will be drawn by the screen lessons than are registered for the course. It is important to have volunteers who will single out every interested new-comer and secure him or her as a regular pupil. Use of the attraction of film-strips in this way will probably double or triple enrolment as well as maintain steady attendance.

(*b*) A few posters scattered around town with the first lesson or two printed on them will help to keep everyone aware of the campaign as such, to attract new learners, and primarily to give the regular pupils a chance to show off and thus review and solidify their knowledge. Gujerat once printed the charts on cloth for this purpose. A suggestion of Dr. Laubach that the chart be put on metal and planted in every village has never been implemented because of expense. There is no financial reason, however, why the lessons could not be carved in a fresh mud wall and made to stand out with powdered lime or colored chalk.

(*c*) The lesson hour must always be fresh and exciting. Many areas have found it advisable to make it an hour of recreation and general adult education as well as pure literacy. The implications of that for audio-visual aids is obvious. To promote the spirit of fun and fellowship and to get across learning along many lines, literacy centres may quite profitably vary the programme by gramophone, radio, and movie unrelated to reading as such. Dullness quenches the zeal of an adult, gaiety keeps it high.

THE PRACTICE OF READING

Every adult literacy worker knows that the really critical period of the whole process is when the pupil has learned to read but has not yet become a reader. At that stage the importance of recognition of the new skill and of putting it to profitable use, in public if possible, cannot be overestimated.

Of course, the backbone of the answer to this situation is the printed page. But a complete answer involves again audio-visual aids.

1. In worship. "Why not", wisely asks Dr. Bhatty, "have slides made of the Lord's Prayer, the Creed, the Commandments, in clear attractive script, and throw them on a screen during worship services for congregational participation?"

The folk would know these portions by heart, but would read them, with great satisfaction, from the screen and thus have valuable practice which would carry meaning because incorporated in the act of worship. Why not do the same with the best-known hymns? In small congregations without the necessary equipment a poster could serve a similar purpose, though less effectively.

2. In work. The new literate needs to discover at once that his ability to read raises his technical know-how. Why can there not be film-strips or movies which demonstrate better agriculture, better tanning, better all general skills? That, you will say, is the whole field of audio-visual education. Certainly it does impinge on the other chapters of this handbook. But two things need to be said on behalf of the new literate regarding this general programme.

(*a*) There must be script on the film, enough to give practice in reading. And that script must be prepared in the basic vocabulary used in the primer and follow-up books, with new words carefully controlled, gradually introduced and often repeated.

(*b*) There must be pamphlets using the same vocabulary and ideas, to be given to each one who sees the pictures, that he may at once refresh his memory and deepen his reading habit.

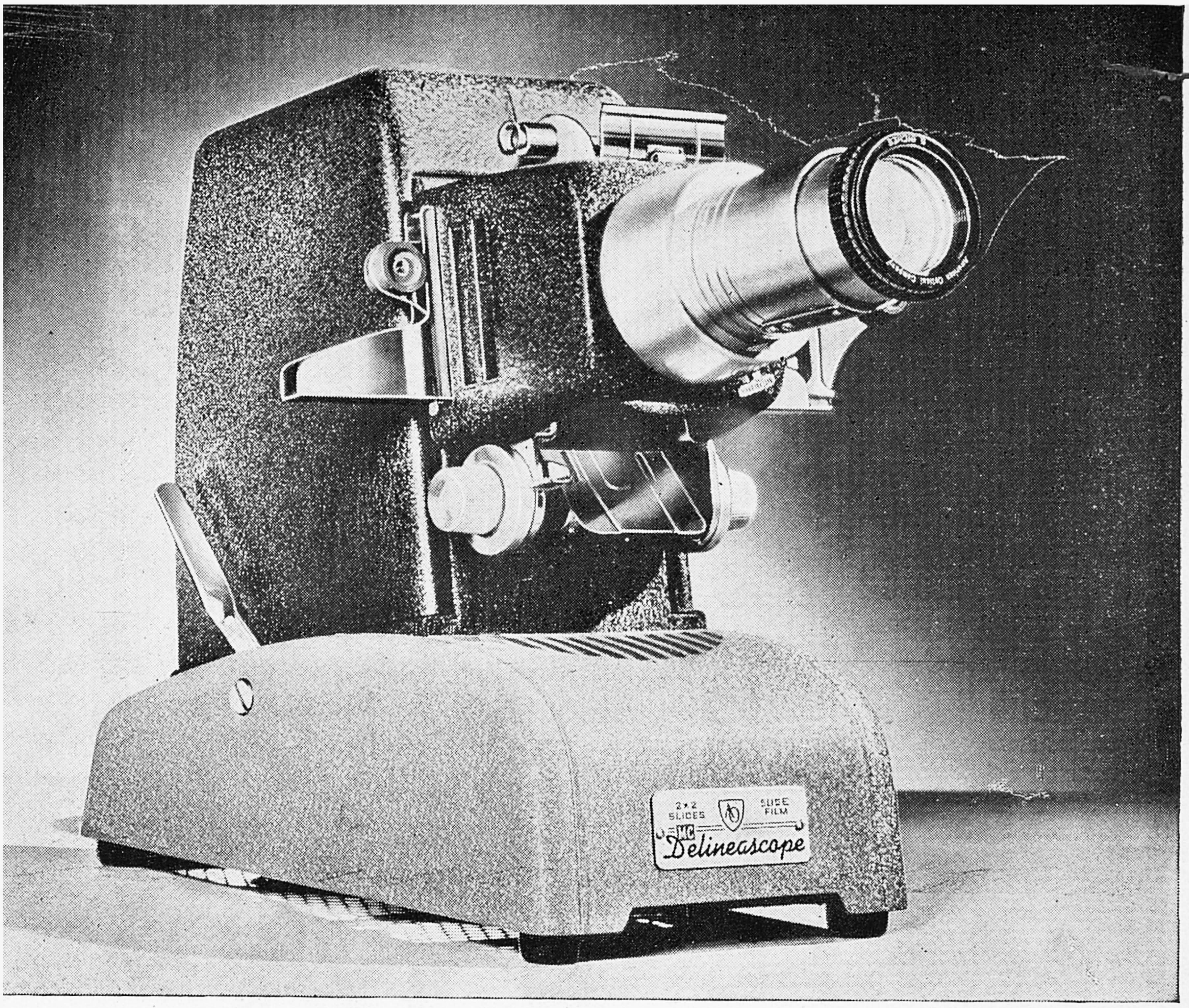
It might be added that there should be a graded plan for the production of these follow-up materials.

EQUIPMENT

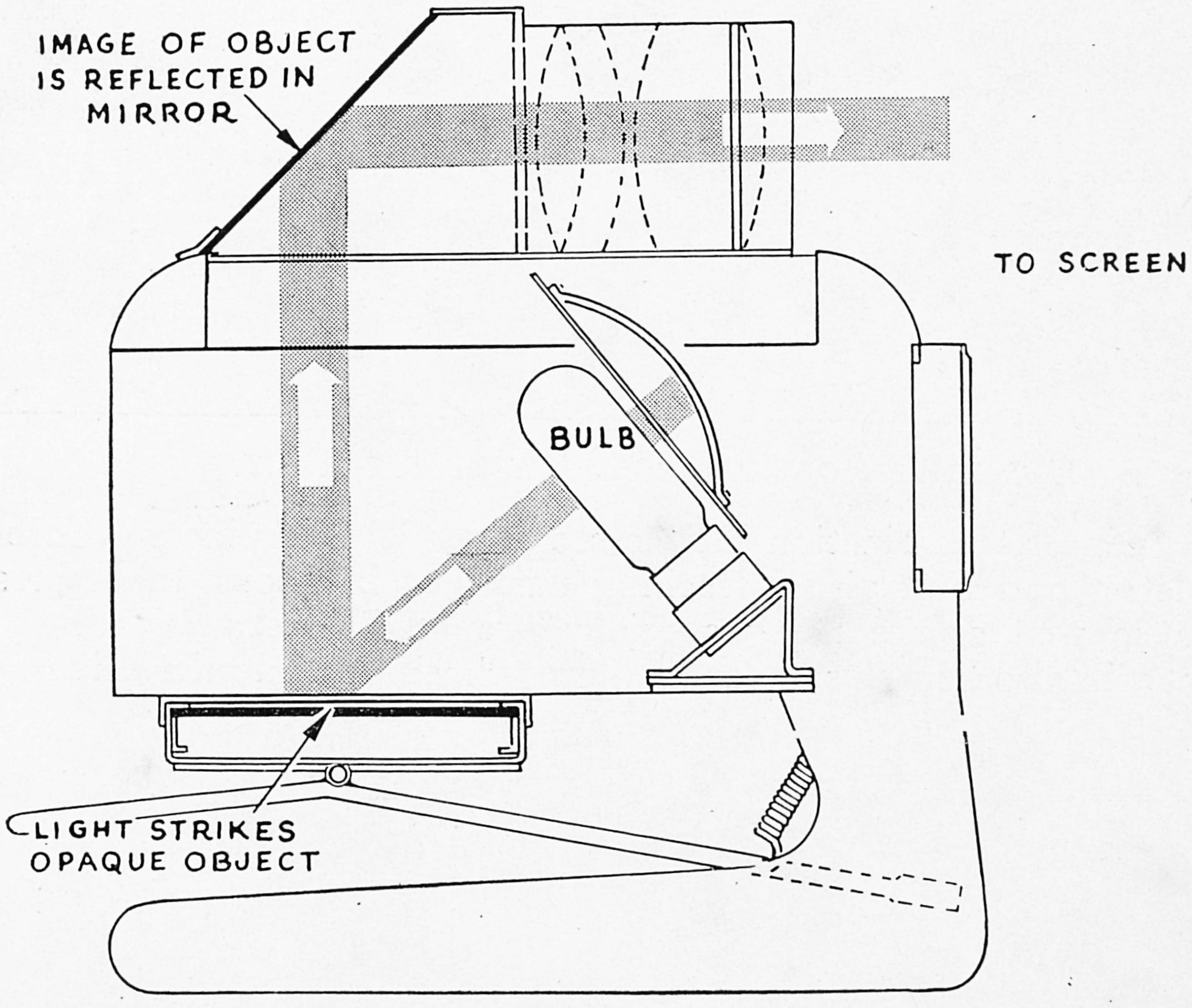
Before materials are planned at all there should be investigation of what equipment is available. The Government of Madras, for instance, will make available for educational purposes certain projectors. Other governments may plan similar service. Find out first what machines can be thus secured and what machines are already in use in Church and mission institutions, so that the films, etc., to be produced may be suitable for the widest utilization of existing equipment. Otherwise expense will be unduly incurred and distribution hampered.

CONCLUSION

Let it not be thought that these aids can take the place of any of the established rules for literacy campaigns; detailed planning, prior local organization, training of teachers, sound psychology, etc. Over-emphasis on audio-visual aids is likely to weaken the emphasis on developing reading habits. Teachers of adults must guard against the error of being satisfied with what is given through the film script and failing to be concerned about the follow-up literature and newspapers and magazines, profusely illustrated with pictures, which too are Visual aids. But given a live campaign, audio-visual emphasis will supply the vitamins to make that campaign even healthier and livelier and actually more fruitful.

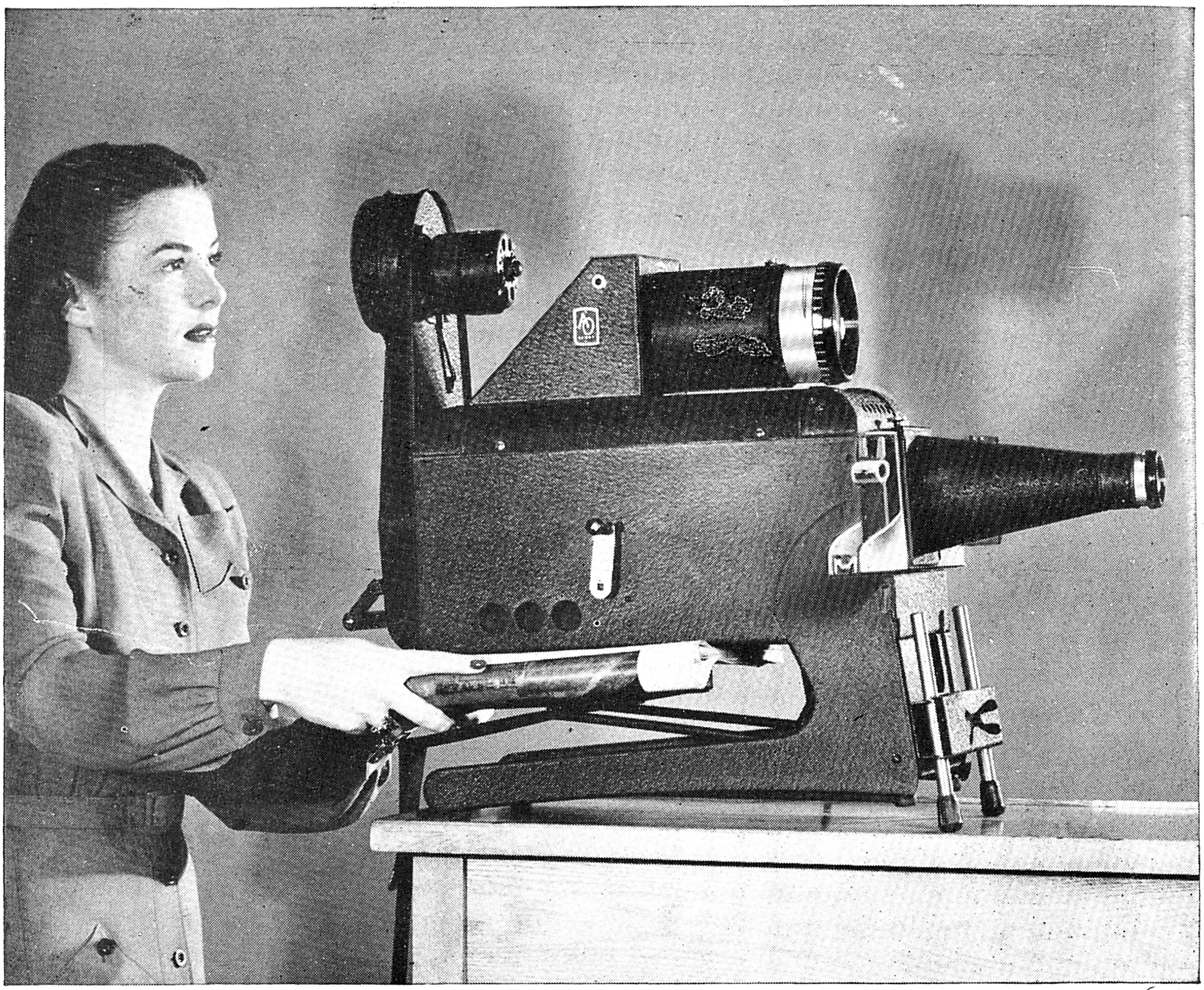


A FILM STRIP AND $2'' \times 2''$ SLIDE DELINEASCOPE



HOW LIGHT IS REFLECTED IN AN OPAQUE DELINEASCOPE

Courtesy: The American Optical Company, Buffalo, N.Y.



AMERICAN OPTICAL COMPANY BUFFALO, N.Y.

The Spencer Combination Delineascope Model VA places before your class the latest and best visual teaching materials in books, magazines, and pamphlets as well as the many specially prepared illustrated units. This instrument will also handle standard lantern, filmslides and microslides.

CHAPTER XXII

AUDIO-VISUAL AIDS IN THE ELEMENTARY SCHOOL

RENA SINGH[1]

AUDIO-VISUAL aids are the most basic and the most essential tools in the hands of the elementary school teacher. It is with these that she can make the classroom experience of the child rich and meaningful, concrete and memorable. Experiences are rich when they are accompanied by qualities such as, pleasure, emotional gratification, and personal satisfaction. Good teaching involves the feelings as well as the intellect.

With the use of audio-visual aids the classroom can become an interesting place where the pupils have interesting experiences—where they can see, hear, taste, touch, make, plan, experiment, try and do. Thus education becomes not merely a phase of an individual's life, but is co-extensive with life itself, and so like life becomes rich and adventuresome. This may sound Utopian, but it will work if we will only let it!

A VARIETY OF AIDS

The elementary school teacher has in her hands the responsibility of moulding young, impressionable minds, and it is up to her to take advantage of the best teaching methods and materials. There are a variety of ways in which audio-visual aids can be incorporated into teaching, but not for one moment should the teacher think that she can be substituted by these audio-visual aids, nor should they be used as an escape mechanism. The true relationship of these aids to teaching should be realized by the teacher before she goes full swing into an audio-visual programme.

Audio-visual aids do not necessarily have to be elaborate. Begin with what you have in your school and in the environment around you.

TYPES OF AIDS

Here are a few suggestions for classroom use:

1. Flat pictures.
2. Sand tables, bulletin boards, models, miniatures, and mock-ups.
3. Drawings, sketches, posters, flat maps, charts.
4. Exhibits, objects and specimens.
5. Dramatization.
6. Slides, film-strips, and motion pictures.

[1] Miss Rena Singh, Lucknow, U.P., has recently returned from the U.S.A. after completing her Graduate Study in Education, majoring in Audio-Visual Instruction, at Columbia University. She is in-charge of this department in the Lal Bagh Higher Secondary School.

STILL PICTURES IN THE CLASSROOM

The still picture is a vital force in vitalizing and enriching instruction. Flat pictures have always been used in schools to some extent, and these can be continued to be used effectively and cheaply. Pictures cut from magazines and old books can be used. Photographs and illustrations are another source. If the pictures are really good they should be mounted and filed so that they can be used for future reference. If possible they should be mounted on a standard size cardboard and filed and catalogued according to subject matter. A standard size is desirable because it facilitates filing, storing and preservation. The cardboard should not be of too heavy a texture but enough to give the picture support and body.

I. USE OF PICTURES IN A MEANINGFUL WAY

1. Pictures can be used to brighten up classrooms. Most of our classrooms are drab and unattractive. A weekly or biweekly display of pictures on the classroom walls will change the tone of the classroom. Committees of students can be made responsible for the exhibit and it should be seen that the display is closely related to the unit of study.

   The exhibit should be made pleasing and attractive. Good, artistic arrangements are very necessary. A striking, appropriate headline for the whole display would be helpful. Don't use too many pictures. Use only a few and arrange them skilfully.

2. Use pictures for careful study.

   Children can very often read more meaning in a picture than in written material. Teachers should encourage the children to find the answers to their questions in pictures because pictures very often clarify meanings and make the abstract more concrete.

3. Use pupil participation.

   Pictures inspire pupil participation and children will readily talk about a good picture. There can be intelligent and interesting discussions about pictures and their meanings. Pupils making their reports to the class may be encouraged to use pictures to illustrate their reports.

4. Introduce a subject and arouse interest.

   A few good pictures of life in Japan will help to interest pupils in that country. Thus motivated, interest will be aroused, resulting in a desire to read, find out, make and do.

5. Bring the outside world into the classroom.

   It is up to the teacher to create a rich, educational environment for her pupils; to bring the local community, the province, the nation, and later the whole world into the classroom. To bring the world to the children we must use pictures.

6. Enrich reading.

   Still pictures are so inexpensive that any teacher or school can afford

to provide an abundant supply. Pictures can make new words meaningful, and can turn word pictures of textbooks into visual pictures. Pictures are an excellent supplement to assigned reading.

7. Correct wrong impressions.

Every child has mistaken impressions of history, geography and other subjects. Well-selected and well-printed pictures help prevent this condition. Pictures also help retention of what is taught.

TECHNIQUES OF TEACHING WITH STILL PICTURES

1. Agree on general story the picture tells.
2. Help pupils observe important items.
3. Compare and contrast items.
4. Build concept by showing different stages in a process.
5. Help pupils draw inferences from visual clues.
6. Check results of study.
7. Guide pupils in search for more information required.

CRITERIA FOR SELECTING PICTURES

If pictures are to serve their maximum purpose they should be selected with a certain criteria in mind. Quality rather than quantity should be the first criterion in planning a picture collection for teaching purposes.

1. A good teaching picture is clear and definite; it gives an accurate impression; it portrays vividly that which it presents.
2. It is authentic and represents the situation as one might see the actual scene.
3. Simplicity of content is a prime essential, especially for young children. A complex picture often distracts attention instead of focussing it on the main points.
4. A picture which proposes to show current events must be up-to-date.
5. Colour enhances the value of pictures, but the misuse of colour very often leads to erroneous ideas. A poorly colored picture should not be used. A good quality black and white picture is far superior.
6. The picture should be technically excellent and should be large enough to be clearly visible.
7. The picture should be adapted to the maturity level of the children.

GENERAL SUGGESTIONS

1. Search for best pictures.
2. Use only those that are needed.
3. Ask skilful questions to stimulate observation and thought.
4. Allow time for study.
5. Teach skill in learning from pictures.

6. Discard pictures of temporary value.
7. Use only a few pictures at a time, and use them intensively.
8. Use pictures for a definite purpose or purposes.

II. THE USE OF SAND TABLES, BULLETIN BOARDS, MODELS. MINIATURES, AND MOCK-UPS

The elementary school teacher can very effectively make use of these contrived experiences enumerated above, if she will use a little initiative and originality.

Sand tables are a visual media which have been used in schools, but sometimes their purpose is forgotten by the teacher. The scene which is depicted by the sand table is allowed to stand a duration beyond its usefulness, and thus the true teaching value of the medium is lost, and merely becomes a decorative piece. Once the unit of study is finished and the table has served its purpose the scene should be dismantled.

Pupil participation in the making of sand tables, bulletin boards, miniatures and mock-ups is very essential. This arouses keen interest in the unit and encourages research on the part of the pupils. Creative and constructive suggestions of the pupils should be incorporated in the making of these things, and the art work should be the major contribution of the pupils.

Bulletin boards are a highly educational visual aid, but they have been seriously neglected. A bulletin board is a place for the posting of timely, brief items which are of interest to the pupils. They should be posted at places round the school building where they will attract the attention of the students. The material posted, whether it be the announcement of some school activity, or whether it be news, it should be attractive and newsworthy. The news, of course, should be adapted to the maturity level of the pupils. Children will be strongly attracted by color and this factor should be exploited advantageously by the teacher. In the elementary school the teacher will have to do most of the planning but even in the elementary school the children of the higher grades can be asked to participate in the planning.

Bulletin boards can be made in a variety of ways. Some can be made out of plywood or any other inexpensive wood which is light and durable. This board can either be hinged on to the wall permanently or it can be made portable. Another inexpensive method is to cover wall space with a piece of durable cloth and things can be tacked on to this.

Models, miniatures and mock-ups help students to understand the construction, mechanism, and the operation of heavy equipment and machinery which cannot be brought into the classroom or which is not accessible even through a field trip. If the pupils are allowed to build models and miniatures for themselves they will also learn more and will show more interest in the unit of study.

III. USE OF DRAWINGS, SKETCHES, POSTERS, MAPS AND CHARTS

The above visual symbols are all usually large, attractive, and attention commanding, and therefore, can be used very effectively with elementary school children. Teachers can use these for the purposes of motivation, for concept building, for supplying information, or for reviewing and testing.

IV. USE OF EXHIBITS, OBJECTS, AND SPECIMENS

Schools should encourage the showings of exhibits which are a product not only of the school but also those which are borrowed from outside sources. In an exhibit a group of articles and materials are arranged to convey an unified idea.

Edgar Dale observes:

> "An exhibit can be simple, calling for merely a few moments observation, or it can involve several sensory activities. A child not only sees a products exhibit but can handle, feel and smell the displayed articles. Teaching exhibits, therefore, range from the merely visual to those involving tactile, olfactory, auditory and other senses. You can make your exhibit as simple or as complicated as you wish—or, rather, as your teaching problem demands."[1]

SOME STANDARDS FOR EXHIBITS[2]

1. An exhibit is seen, not heard.
2. Put only one big idea in your exhibit.
3. Put your exhibit in a place where it is sure to be seen.
4. Make your labels short and simple.
5. Labels should be uniform and legible.
6. Motion in an exhibit attracts attention.
7. Be sure your exhibit is well lighted.
8. Color may add interest and attractiveness.
9. Sound and various mechanisms may add interest and attractiveness.

Objects and specimens are common collections in schools. They are a good substitute for the real thing itself and help children to form generalizations when the direct experience itself is not possible. Specimens for nature study are brought into the classrooms, and even though they are the real thing minus the real setting, they can be handled and studied directly. Children should be encouraged to bring objects and specimens into the classroom to build up the collection. Discretion, however, should be used on the part of

[1] Dale, *Audio-Visual Methods in Teaching*, (New York, 1946), p. 157.
[2] *Idem. op. cit.*, p. 168.

the teacher to see that useless and valueless objects are not made part of the collection. Too much material and too many details overwhelm the pupils.

V. FIELD TRIPS

A field trip is an educational experience starting in the schoolroom and extending out into the community, and continuing back into the schoolroom. The learners go out under the guidance of the teacher.

Advantages of the field trip

1. First-hand contact with the object.
2. Makes a better and lasting impression.
3. Clarification of concepts, since objects and processes are studied in their natural setting.
4. Creates an interest in community problems.
5. Helps to create in children a keen sense of observation.
6. Opportunity for group activity.

Limitations of the field trip

1. Purposes are sometimes hidden and the true value of the trip misunderstood and abused. Children are apt to consider such a trip as recreational rather than educational if the teacher does not act as a guide and counsellor.
2. May be too time-consuming.
3. Expense is sometimes a limiting factor.
4. Seasonal restrictions.
5. Teacher liability: she is liable if the trip fails through her negligence—accidents, etc.

Teaching procedures in a field trip

A. *Preparation*

(*a*) Trip must be planned to meet the needs and interests of the pupils.

(*b*) Teacher and pupils set up specific purposes.

(*c*) Individuals committees, or the whole group accept certain responsibilities.

(*d*) Group plans schedule, transportation, etc.

B. *Learning on the trip*

(*a*) Active observation by the pupils.

(*b*) Teacher alert to learning possibilities.

C. *Follow-up work*

(*a*) Facts collected are revised.

(*b*) Previous questions are answered or extended.
(*c*) New problems or questions raised.
(*d*) Further learning activities started.

Standards for trip locations

1. Place must represent all or most of elements to be studied.
2. Objects, processes, etc., must be understandable to pupils.
3. Location free from danger.
4. Location not too distant.

Making a local guidebook

1. Make classified outlines of local places.
2. Visit places and evaluate them.
3. Make a list of approved places.
   (*a*) location and distance.
   (*b*) owner or authorities.
   (*c*) visiting hours or season.
   (*d*) travel route or transportation.
   (*e*) special features to observe.

General considerations

1. Each trip should be approved by the school.
2. Either the school budget should provide a fund for the expenses of the trip, or each individual child should bear the cost.
3. The teacher should avoid negligence through careful planning and preparation.

VI. THE USE OF DRAMATIZATION IN THE CLASSROOM AS A MEANS OF AUDIO-VISUAL TEACHING

A drama or any kind of dramatization is usually a stirring experience and full of action, therefore, it is not easily forgotten. An elementary school teacher can use to advantage this medium to make the classroom experience rich and "living".

Dramatization is not just the monopoly of literature, but can be used for a unit in history, or geography, or religious education, or any other subject in which the teacher can use her originality. In dramatic participation the student is able to re-live the character it portrays and thus comes closer to direct reality.

Values of dramatization

1. It gives the participants a real insight into the meaning of the play, or whatever it is they are trying to portray.
2. It helps to relieve self-consciousness in the child.
3. It helps children to work co-operatively.

4. Helps in diction, voice training, facial expressions, body carriage and poise.

Kinds of dramatization

1. The play.
2. Pantomine and tableau.
3. Puppet show.

VII. THE USE OF SLIDES, FILMSTRIPS, AND MOTION PICTURES

Slides, filmstrips, and motion pictures all three require projection equipment before they can be used at all. Most elementary schools in the country cannot afford their own equipment, therefore, the use of these aids is not as extensive as we would like to see it. There are, however, agencies which do supply projection equipment but they need the guarantee that the projectionist is experienced. If, however, schools can afford such a programme they should go right ahead using these aids as effectively as possible, never forgetting the true relationship of these aids to teaching.

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CHAPTER XXIII

AUDIO-VISUAL AIDS IN THE HIGH SCHOOL

NED R. REED[1]

A. THE AUDIO-VISUAL PROGRAM IN THE HIGH SCHOOL

THE Audio-Visual Program in the High School is not basically different from the program in the elementary school or college. Equipment provision may be slightly different but the same teaching concepts are always there.

As compared to the elementary level, High School students can assist in planning, utilizing, and making more applications.

1. A student may illustrate his report on Madame Curi by a film strip of her life.
2. He may illustrate his report on Natural History with coloured pictures that he has selected from his own materials or drawings of his own design, projected to life size on the screen by the opaque projector.
3. He may take pictures with his camera on the Field Trip and turn them into an original film strip for presentation to the class. This will be an excellent method of review.
4. He may prepare a set of his own photographs on a subject, such as his own studies on nests of wild birds.
5. Students may plan "Radio Broadcasts", "News Programmes", and "Round Table Discussions" for use in class or over the school Public Address System.
6. Collections of many kinds may be carefully prepared. Through affiliation with a museum they may prepare actual specimens for such a museum and receive other materials in return.
7. The students are old enough to be trained to run all the equipment, thereby releasing the teacher for the presentation.

The faculty must be thoroughly familiar with the materials on hand, what can be readily obtained, and how it can be correlated with their own classwork. This is the greatest barrier to overcome after one has been able to get Audio-Visual Aids to be available to the teachers. Perhaps specific lists to each department and teacher of the special films, strips and pictures available that might really fit their classwork. Hold small group meetings and interest groups to plan correlation.

If no other opportunity shows itself you might first get one teacher

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especially interested and help him to use all equipment and materials to the limit. It will stimulate others.

Equipment must be set up ready for instant use—usually in a room properly prepared with seats, darkened windows, screens—with phonograph and all projectors ready to use. The other materials may also be stored in the same room to insure ready access. It is desirable to be able to use class-rooms for projection, but the expense may not be possible.

All orders should be correlated by one person who places actual orders. This yields fullest utilization of materials while in the school, as each department interested may use it at the same time rather than order the same film several times.

Do not specialize on one phase only. Remember, a properly rounded programme does all it can to promote all forms of visual and audio teaching—do not overlook exhibits, are handicrafts, music, flannelgraphs, bulletin boards, maps, charts, flash cards, picture rolls, posters, blackboards and chart talks, sand tables and field trips, as well as film strips, Kodachrome slides, lantern slides, movies—silent or sound (or someone may have an excellent collection of 8 mm. films)—or a fine collection of steriopticon pictures such as were popular years ago. A modern version of the steriopticon with excellent three dimensional depth to the pictures—using special cards with dual pictures mounted on them or special film-strips—*i.e.*, the Tru-View viewer is available cheaply.

B. THE PERSONNEL FOR YOUR PROGRESS

Without proper administration any audio-visual effort will perish. Every school should have one person in charge of the Audio-Visual Programme. Upon this choice a great deal depends. Some of the desirable traits may be:

1. He should have a conviction that these materials are vital in their contribution to the curriculum.
2. He should have broad interests so that all phases are utilized.
3. He should have some minor mechanical ability, especially as in India good servicing of equipment is difficult to obtain, and then after a high cost.
4. Some knowledge of acoustics and optics or lenses is helpful in order to plan efficient room arrangements and projector placements.
5. Perhaps his greatest asset aside from an all-prevading interest is a combination of tact, common sense, and salesmanship. In the average situation he will have to "sell" the programme to all levels of school from the Administration and "Purse strings" to the individual teachers.

C. FINANCING YOUR PROGRAMME

This is a frequent stumbling-block. A permanent provision for finance is the only stable and proper source. The Budget is the natural source. Audio-Visual aids are merely another form—more effective than older methods if properly used—of educative technique, and they deserve a share of the Budget just as surely as textbooks and pencils.

Temporary measures to raise funds to secure a start or to help secure initial equipment are:

1. Admission charges for special programmes.
2. Gifts from interested people.
3. P.T.A. or other group donations.
4. Proceeds of special sales and other established community or group activities. This may be given in full or divided on occasions for your work.
5. Special student fees may be feasible.
6. Special grants (non recurring) may be given by your supporting Mission, government, or community. Beware, however, of hampering restrictions that may be involved by its acceptance.
7. Small allocations of funds may be diverted by each department as its share of expenses, leading eventually to a consolidated support.

Amount of Money Needed

This varies greatly according to the number of students and the cost of materials. In India, number of students is often small and prices high, both make greater per capita expenses.

In addition to initial equipment purchases and replacement, normal running expenses as well as rental and repairs may be met with a budgeted amount. The minimum operating amount is at least Re. 1 per student per year, or 1% of the annual per pupil cost of the normal school programme.

The average programme may require from two to five times the amount of money, depending on its scope.

D. MATERIALS FOR YOUR PROGRAMME

Refer to chapter No. 4 on "Equipment Recommendations and Sources"

1. Combination 2″ x 2″ slide and film strip projector, should be able to show both single frame and double frame film strips, *i.e.* S.V.E.'s AAA projector.
2. Opaque Projector for books, coloured pictures up to 6″ x 6″ and collections.
3. Movie Projector, preferably sound, 16 mm. as this can show either silent or sound films. Few modern films are made now in silent versions.
4. Screen.
5. Phonograph, preferably a good electric model, (although the hand-wound portable may have many excellent uses in schools due to its simplicity).

   Consider the possibility of getting one that will also play 16″ radio transcriptions and other slow speed records.
6. File coloured post cards, catalogued by country and subject. Easily shown on an opaque projector.

7. File coloured pictures of larger size, also catalogued appropriately. It is best to mount on cardboard 8″ x 10″ which is large enough to be easily grasped while in the projector. Actual 6″ x 6″ area is projected at one time.

   Some use pictures pasted together in strips for special topics. If not mounted in some way they are easily damaged. Also the blower in the projector may disturb their position.

   National Geographic and other magazines are excellent sources of pictures. National Geographic issues special reprints of all their coloured pictures for school use at cost.

8. File of maps, such as National Geographical issues with their magazine, catalogued for ready use on Bulletin Boards and in classes. Some classes that use maps constantly will want permanent maps of cloth mounted readily in the class room.

9. Phonograph Records. List them. If more than 200, they should also be catalogued simply as to type, author and title.

For use in:—

(*a*) Music appreciation.

(*b*) Programmes.

(*c*) Classes.

They should be carefully stored:—

(*a*) In albums, or

(*b*) In envelopes.

(*c*) On edge only on padded shelves.

(*d*) They must be protected from sunlight, excessive heat and dirt.

10. Film strips: Catalogued and stored on shelves or in some readily accessible manner.

    These are cheap enough that each group should have a basic collection. They may be supplemented by rental films.

11. Adequate stock of spare projection bulbs, tubes or valves, belts, and other basic materials for *all* your equipment.

Refer to the chapter on Equipment Recommendations for further equipment. Schools may profit from other things, i.e.

Recording Machine—Disc Type.
—Wire Type.
—Tape Type.

Public address system.

Duplicate equipment such as tri-purpose film strip projectors, depending on the size of your institution.

Cataloguing: It may be simple or complex, but it should cover all types of available materials, with individual files and also a master file. In the master file all type of materials available should be listed under any heading.

Some use the Dewey Decimal system; you may use class and subject headings. In any case be thorough and allow for expansion.

E. FILM TEACHING TECHNIQUES FOR YOUR PROGRAMME

We cannot here set up rules for using all Audio-Visual materials, as they cover the entire field of teaching. We can set up principles for the use of films of all kinds. The basic principles for these will be the same for all other materials, but film materials are the most frequently abused by misdirected use.

1. A film is *not* a substitute for teaching. It alone will accomplish little. To properly make it a part of your work really adds to your job, but it will result in better teaching.
2. Films may be used many ways, depending on your timing and approach, i.e.
   (*a*) Previews.
   (*b*) During the study or learning period.
   (*c*) Review.

   Any one film may well be used in all of these ways, *but* it may be especially suited for one phase.
3. The time to use the film is mainly when it will expedite learning *better* than any other usable aid.

   Testing and observation may be your guide here.
4. Plan your schedule far in advance.
5. Order your films early.
6. Do not crowd your showings, as best results are usually obtained from use of a *single* film well integrated into your schedule, once, or several times as it may be. Twenty minutes is considered a safe maximum for film presentations in class.
7. Evaluate the films you use and *record* this information. It will help when you plan for next year. Catalogues give too little information.
8. Preview the film if possible.
9. All equipment should be set up, checked, and ready to go with no distracting interruption.
10. Students must understand what the film is about and why they are to see it.
11. Key points may be emphasised by repeating.
12. Follow up is essential.
    (*a*) Discussion.
    (*b*) Objective tests. These may be checked against previews. Test for noting amount and quality of learning.
13. If possible to promptly actually use or apply the principles developed, learning is re-enforced.

F. EVALUATION OF YOUR PROGRAMME

The American Council on Education evaluates total programmes[1] according to

1. Organization of programme.
2. Degree to which physical difficulties are overcome.
3. Promotional activities.
4. Utilization of materials.
5. Financial support of programme.

The following list of evaluative questions have been built around the above suggestions.[2]

Supervision and direction.

1. Do you have one person in charge?
2. Does he have proper status, co-operation, and assistance?
3. Does he help teachers select and utilize materials?
4. Does he train, supervise, and administer?

Facilities and equipment.

1. Are building facilities adequate—proper wiring, ventilation, darkening, acoustics, storage?
2. Is there sufficient basic equipment?
3. Is it used to its fullest capacity?

Materials.

1. Are materials ordered properly and far enough in advance?
2. Are they received regularly?
3. Are material needs carefully studied to decide if they are to be rented or purchased?

Teacher training and information.

1. Are teachers encouraged to attend institutes and work-shops in the use of Audio-Visual materials?
2. Do they receive proper instruction in equipment operation?
3. Do they receive adequate assistance in using these materials through conferences, publications, etc.?
4. Are complete catalogues of all materials readily and conveniently available?
5. Are books and publications about Audio-Visual materials readily available?
6. Are guides for teachers simple and specific?

[1] Helen H. Seaton, *A measure for Audio-Visual Programmes in Schools*—Washington, D.C. American Council on Education, 1944.

[2] Adapted from Schreiber and Calvert, *Building an Audio-Visual Programme* Chicago, Ill. Science Research Associates. 1946.

Financial Support.

1. Is there a regular budgetary appropriation?
2. Does the allowance provide for an adequate staff?
3. Purchase of adequate materials?
4. Maintenance?
5. Planned future expansion?

Most important of all:

Do *all* staff members work at integrating Audio-Visual materials with the day-to-day activities in the classroom?

To be able to answer "Yes" to this question, irrespective of what else is being done, means that your high school *has* an Audio-Visual programme!

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Special Note:

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CHAPTER XXIV

AUDIO-VISUAL AIDS IN THE COLLEGE

EUNICE SLUYTER[1]

A UNIVERSITY exhibit points up splendidly the use of audio-visual aids which can be utilized by all departments. Here we usually find experiments, graphs, charts, maps, pictures, models and all sorts of attractive displays arranged for public inspection. The purpose? To inform the spectators briefly, clearly, interestingly, what goes on in the classes of anthropology, psychology, physics, chemistry and all the rest. Incidentally, perhaps, in the preparation for such an exhibition the students themselves find the material crystalizing into meaningful units as they organize, evaluate, compare and demonstrate in a tangible way the facts they are dealing with.

FROM CONCRETE TO ABSTRACT

It has often been said that those who work with the tiniest children must be the most skilled. Since the children must think in the realm of the visible, the tangible, the concrete, the teacher finds himself put to it to translate his own abstract thought into the kind of symbols that will be meaningful to children, and to put himself into their mental world so that he may comprehend their thoughts and ideas. Obviously specific teaching such as is needed here at this level is surely to be enhanced by objects, models, sand tables, black boards, etc. But as we approach higher education and recognize that thinking proceeds from *the more concrete* to *the more abstract*, what advantages do audio-visual aids offer? To answer this question satisfactorily it will be necessary to side-track here to see what is responsible for this ability to think abstractly. Two factors enter into the development of abstraction: (1) the level of mental maturity attained by the thinker; and (2) the amount of experience with the material of thought. The former is a constitutional factor which we need not consider in regard to our problem, but the latter is very striking. If you will observe a neophyte in any field, you will discover he tends to think in a much more concrete manner than he will after his experiences have accumulated. For example, our first attempt to understand an electron probably brought to mind a picture of a concrete little ball. How meaningful would it have been to have heard it described as a "locus of energy"? An abstract term such as this is acceptable to the expert but hardly to the beginning student. While we are pointing out differences between children's thinking, adolescents' and adults' thinking we must remember that the *material of thought* is the same for both so that in our college use of visual aids we still deal with black board, phonograph, drama, charts, pictures etc., but the thinking which is evidenced in the

[1] Miss Eunice Sluyter, Methodist Church of Southern Asia, is a member of the staff of Isabella Thoburn College, Lucknow, U.P., who with Miss Dorothy Beardon promote audio-visual aids in the College and the Lucknow Annual Conference.

response to these must necessarily be of a different essence than that of young children.

We have attempted to show that thinking as it is executed at the college level is different in its organization and yet the *objects* which acquire these new and differentiated qualities are the identical objects which the child perceives. Thus it would appear that aids which get more material to the mind at a far greater speed would be highly acceptable in the college where the amount of material of learning is so great and the possibilities of widening horizons of interest is so vital. Can it be that under the emphasis of the idea that abstract thinking is so characteristic at this level we have used more and more dusty texts instead of more and more exciting ways of presenting *materials* of thought?

COLLEGE AIDS

The first paragraph suggests one of the tested techniques of applying audio-visual aids to the college. There is a large variety of ways they can be used within the present curriculum of any college and we shall here suggest only a few.

Drama, because it employs the principle of identification (by adopting the role of another, a person withdraws from his own personal life) and because of its costume, setting, and realism is a powerful means of learning history, literature, economics, social services, religion, ethics, or almost any subject you think of. Pantomine, tableau, puppet show, pageant, charades are all variations which lend themselves to various emphasis. Although the time and effort are considerable the worthwhileness of creative writing is in direct proportion to the labour. A project in which students write, stage, direct and enact a drama is never to be forgotten.

Projected pictures: movies, slides, film-strips always bring to life those things just found in print. A moving picture on *How You See* will help a class grasp in a few minutes what days of lectures may fail to get across. A film on therapies may open up horizons of achievement students never dreamed of—even after reading about them! Slides of the beauties of Nature will introduce students to God's handiwork in a forceful way which most talks could never do by themselves. Have you ever used songs flashed on the screen so all could sing from just one slide? So many pictures—silent and sound, slide and strip—are available in India today and can be used at little or no expense.

Notice boards offer endless opportunities for creativity and publicity. A general education may spring from a carefully planned notice board where everything is readable! Current events, tips on etiquette, hobbies, new books, social service plans, alumae news, new botanical specimens, a loved poem, a newly discovered drug, an attractive hand drawn poster may teach many a passer-by.

Museums can be sources of wonderful truth which geographically depicts wonders of life at various stages among numerous species. It should be

kept open to new conditions and students will respond to the challenge of sharing in collections which are given a recognized place in the college.

Worship Centres again call for originality and creativity. Students will find their small group worship or their all-college worship enhanced by thoughtfully planned worship centres and appropriate services. Candles, pictures, flowers are stock supplies which have all kinds of possible combinations and arrangements. Drama, lights, music help people worship because their ears and eyes lead their minds in guided channels. Attention is caught by newness and fresh suggestion. Worship programmes may be beautified by washed leaves, sprays of flowers, an embroidered cloth, an open Bible, a cross of leaves on a white sheet, a picture mounted on cardboard centred on a table for all to see. Background music, solo, duet, choral reading, dialogue, antiphonal choirs, responsive reading all bring messages of worship through the mouth and ear.

Debate and oratory and all kinds of forensics are methods frequently used as class room or assembly techniques of getting interest and student participation. Extempore, impromptu speaking or discussion are all excellent ways of encouraging interchange of ideas. Through debate, reason and argument shape the thought patterns as they are tested. Through oratory the development of ideas is clarified and expression is strengthened.

Field trips are always favourite aids to learning because of the reality. First-hand experiencing and seeing with their own eyes will leave long lasting impressions on students. It may be a scientific expedition, a history class trip, a visit to a sugar factory, or a trip to the hills to see snow; in any event the senses are directly stimulated. This is often effectively done on the college campus itself, or in the neighbourhood.

Radio and broadcasting are today realities for many student groups. The preparation for such programmes involves a real learning experience. Students should be coached in the writing of scripts. Teachers working in co-operation with studio personnel can encourage creative writing. On the receiving end, students can be inspired by special broadcasts and on the other hand can be greatly injured if the programme is merely the broadcasting of cheap bazaar notes which he writes down in his note book for use as "canned" answers.

College publications usually in the form of a magazine are aids to publicity, information, inspiration, reflection, recreation, and are shared by students, alumnae, and college friends. Contributors and readers gain from articles, sketches, pictures, and graphs which are contained in it.

Flat picture files are wonderful sources for countless references in literature, or historic scenes, or biographers, geographical subjects, animal or plant life. These may be accumulated and kept in departmental files for easy reference.

The library is an opportune place for art displays. The aesthetic development should be nourished in some corner of the college campus where students can feed their souls on the beauties of canvas, marble, brass, wood, cloth, or beautiful books.

The above-mentioned aids may be true aids or they may be hindrances if they are abused. With time and care each of them may enrich the teaching and the learning, thus making the education of the college years a happy and vital experience.

The college has yet another responsibility if it would make the most of Audio-Visual aids, and that is to see to it that every student going out from college carries with him an appreciation of the value and an understanding of some of the techniques which he himself may use in his own avenue of life. A club, an "Audio-Visual Aid Week", a workshop, talks, posters, demonstrations of the use of equipment are a few possible channels through which this emphasis can be made. It may be that Staff members get some new ideas too!

When you have experimented successfully, pass on the idea so that other institutions may try it too. We can learn much from one another in this new adventure of increasing audio-visual aids in our colleges.

CHAPTER XXV

LET'S HAVE AN AUDIO-VISUAL INSTITUTE

DONALD F. EBRIGHT[1]

ONE of the main reasons why missions and churches are not using audio-visual aids is that they are not convinced that the results are worth the time, energy and money they require. Yet a wide variety of objective tests in the United States, Canada and Great Britain have demonstrated that visual aids, properly used, do increase the speed and quality of learning and lengthens the memory span. In the face of such valuable aids now at our disposal we may then expect to find certain well established conclusions concerning the indifference of missions and churches to the materials, tools and techniques of the audio-visual movement.

From a variety of interviews and reports it can be said that the non-use of visual aids are:

1. Some missionaries and Nationals have heard of the possibilities of visual education and remain unconvinced because they have not personally experienced its power. They need to be shown. Therefore the short institute with the latest equipment for demonstration is a natural approach to this group.

2. A few ministers and teachers think that these aids are a substitute for their own creative efforts, to be used when they are unprepared or unable to be present. This implies their belief in two senses: the "teacher's tongue" and the "pupil's ear". At an institute this misinformed person will discover the true meaning of the word "aids"—that is, the use of materials and equipment to "aid" the teacher, pastor, doctor, social service worker, etc. The institute or conference emphasizes the use of these aids in the total programme of the church, school, institution or district.

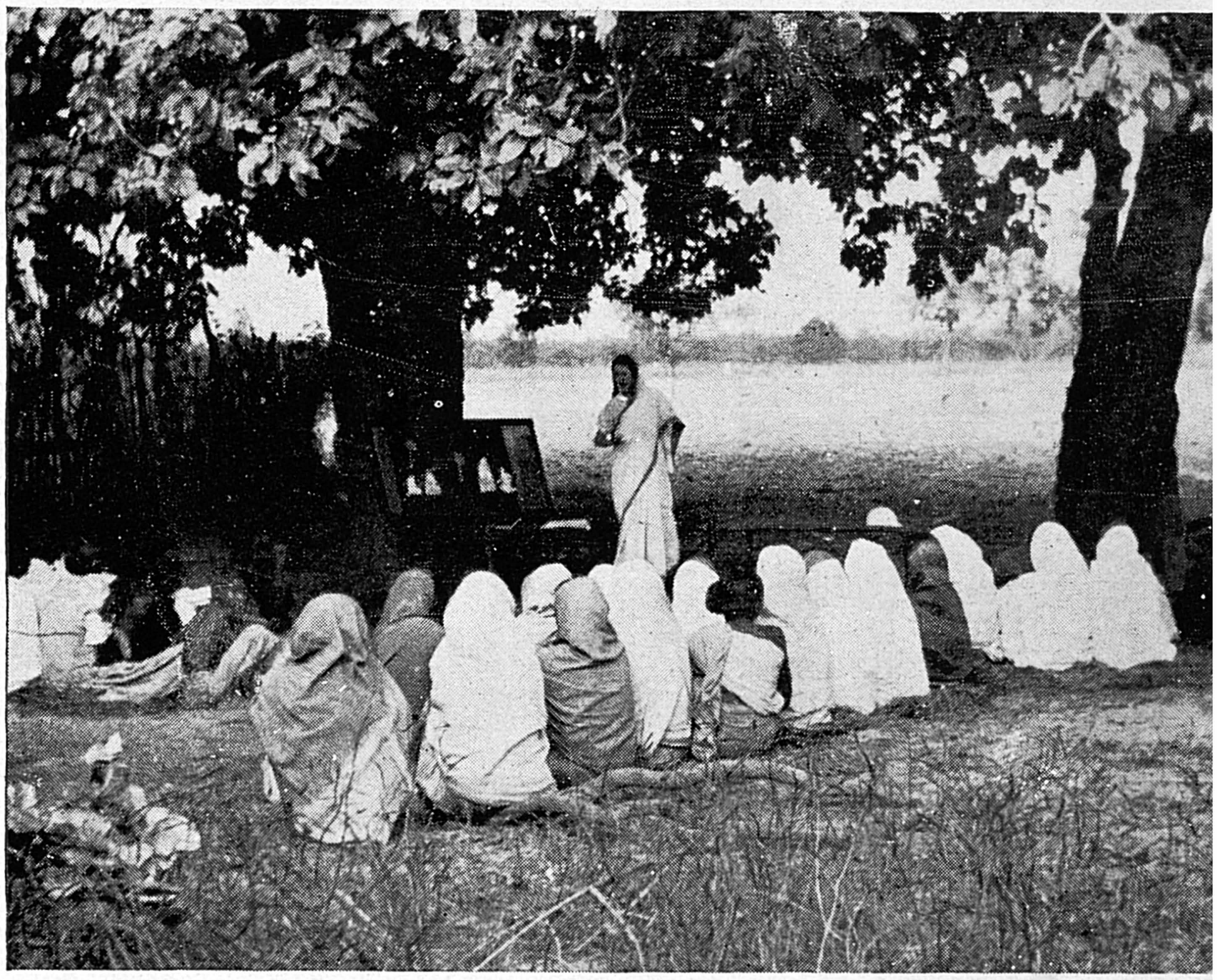
3. A few individuals do not know that there is an adequate supply of materials and equipment already in India to launch out on a bold new creative programme. At the institute new acquisitions for the two National Christian Council Film Libraries, available supplies in leading publishing houses, and sources of films for rental are announced.

4. Some groups have "tried" some projector or aid and being disappointed reverted to the old conventional ways. But in all of the scientific tests the "proper use" of the tool was stressed. How easy for the hunter to blame the gun for the bad shot. The use of pictures, projectors, models, the field trip, maps, a public address system or recording device requires instruction, practice and experience. At an institute there is time to watch equipment in operation, techniques at work and materials in use.

[1] Rev. Donald F. Ebright, B.A., B.D., M.A., Ph.D., 37 Cantonment Road, Lucknow, U.P., is loaned by the Methodist Church in Southern Asia to be the Secretary of the Audio-Visual Aids Committee of the N.C.C.

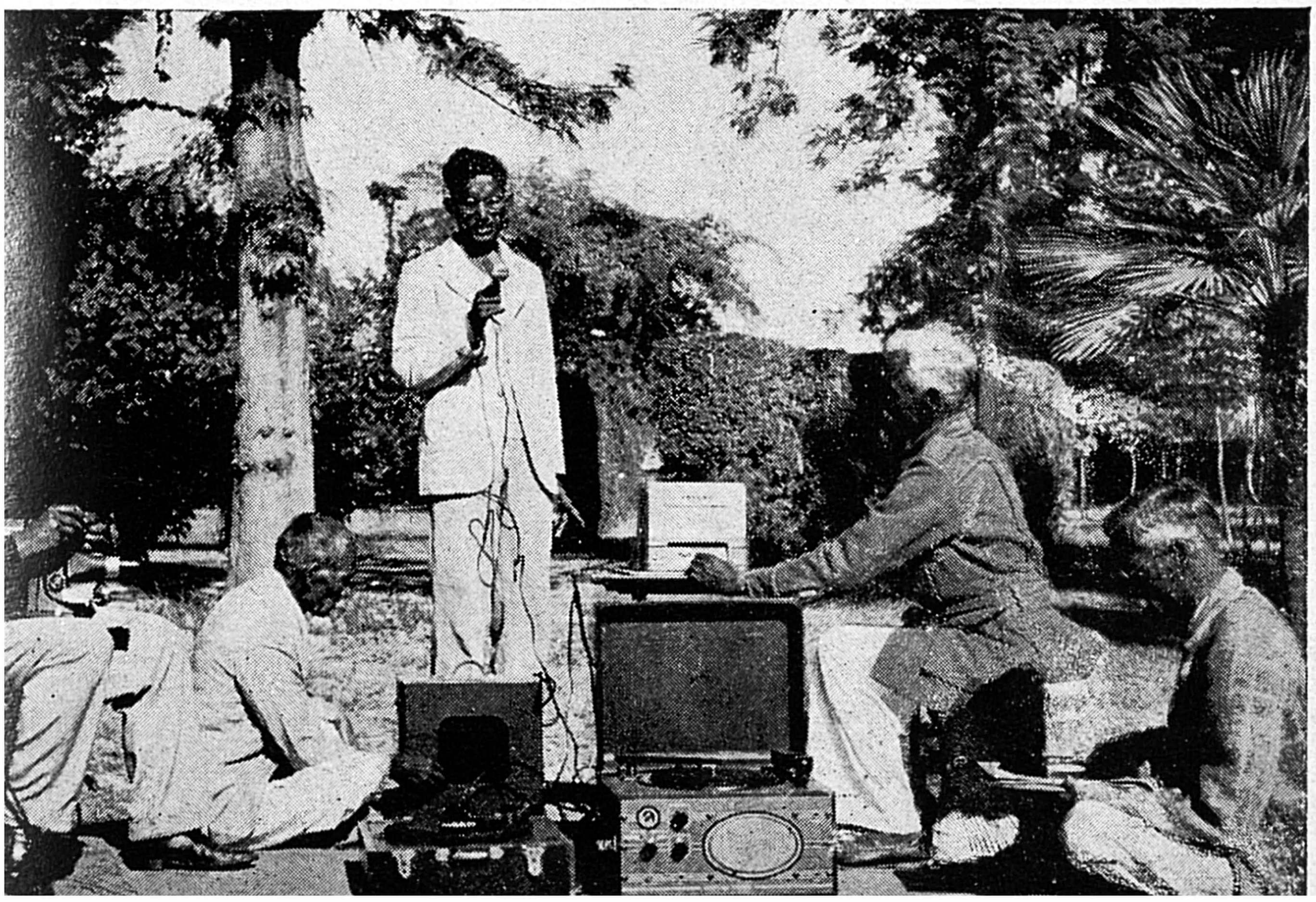
Laymen use Audio-Visual Aids at Christian Mela. Knight 7-watt Little Giant Battery-run Amplifyer with A.T.R. DC-AC Radio Inverter.

Photo by Ebright



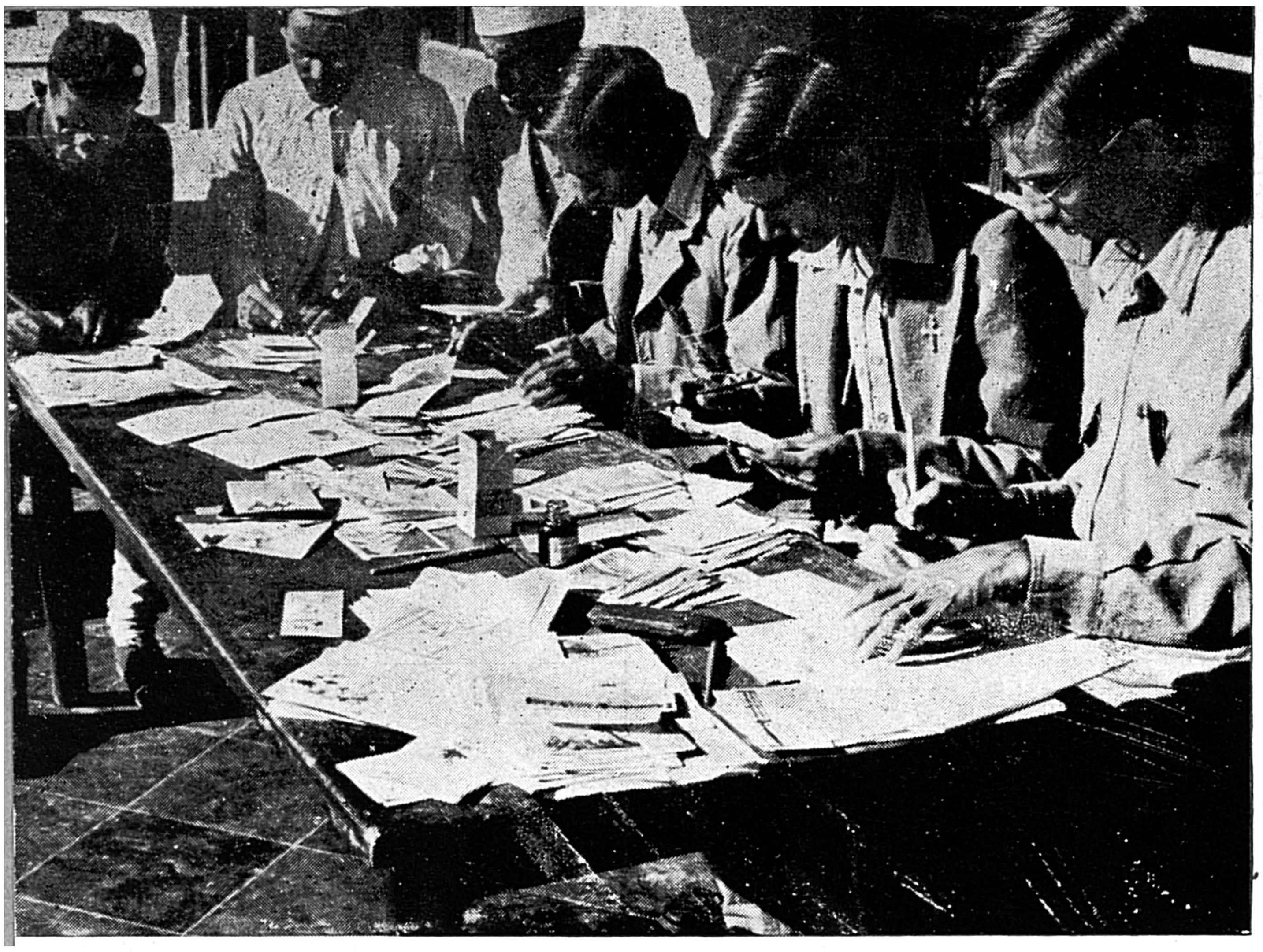
Flannelgraph Background tied to village bed.

Photo by Duerkson



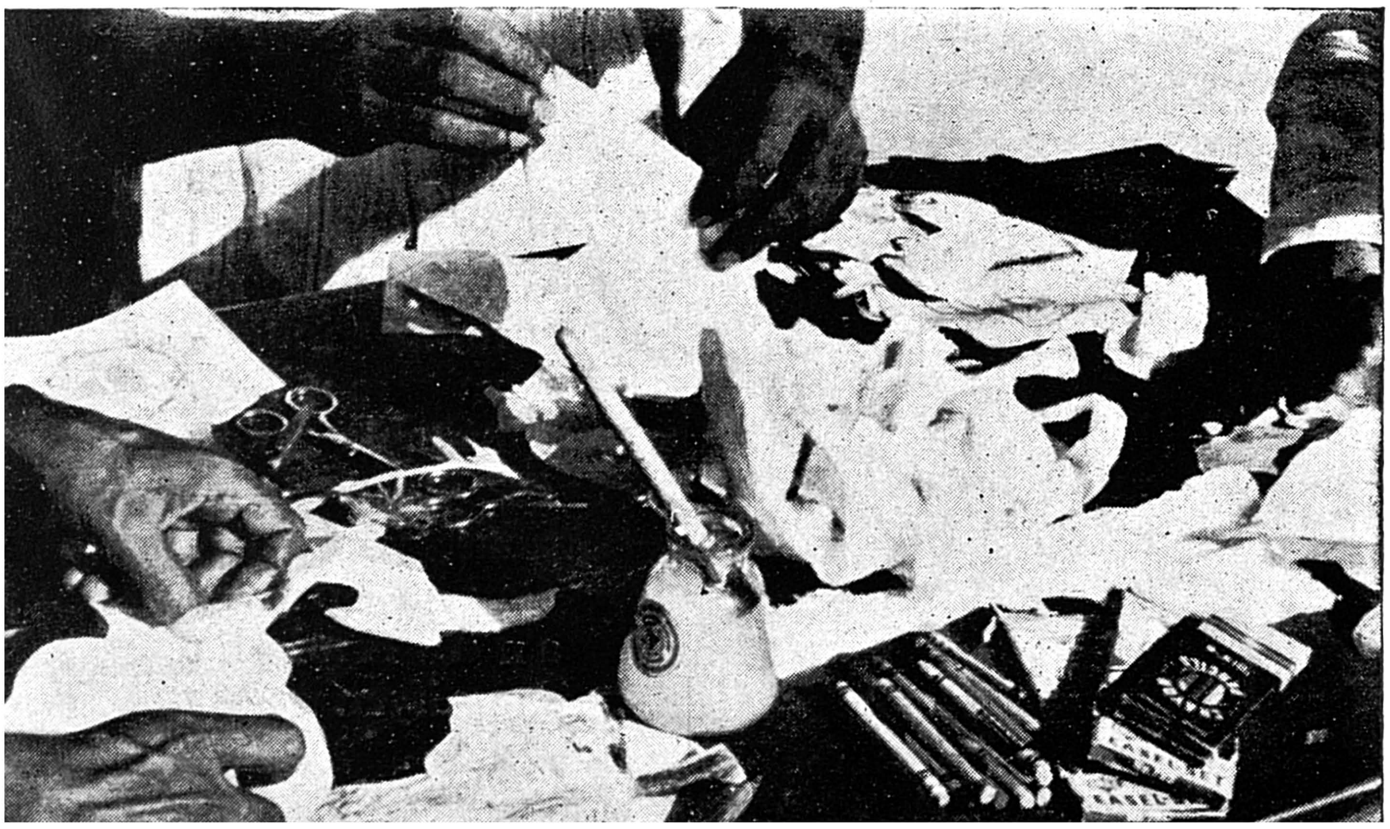
Village Pastors at Audio-Visual Workshop recording indigenous music. Turntable for 16″ Transcriptions, Wilcox-Gay Recordio and Knight Amplifyer.

Photo by Ebright



An Audio-Visual Workshop for Village Pastors and Teachers. Conducted by Dr. Donald F. Ebright, Moradabad, U.P. They learn by doing and create Flannelgraph Kits and Boards.

Photos by Ebright



5. Some people say that "audio-visual aids are too expensive" Here is a limited use of the term. At the institute this group will be told to begin where they are with the use of flat pictures and the widest possible use of such inexpensive but potent aids as the Flannelgraph. This excuse is generally a screen to hide the individual's unwillingness to learn something new, put in more time to do something better and engage in activities that draw deeply upon one's energy. To all these groups the institute is an invitation to come and see.

In planning an audio-visual function three types of gatherings should be considered: (1) The Workshop, (2) The Institute and (3) The Conference. We shall deal first briefly with the workshop and conference:

WORKSHOP

Rev. E. L. King, in the September 1949 *India Christian Endeavour*, defines the essential characteristics of a workshop:

1. The *problems*, *needs* and *interests* of those taking part determine the activities of the workshop.
2. Each participant is expected to *do* something, not merely be a passive spectator or listener.
3. The programme is flexible, tailored to meet the needs of the group in question, or even of a single individual—it is, therefore, *democratic.*
4. The end-result is work done, problems solved, needs met, interests deepened—and not mere 'marks' or 'credits'.
5. The workshop is a *means*, not an end in itself. Those who share in its activities are expected to *carry-on*, *follow-up.*
6. In the process the participants themselves are *changed*—fired with new zeal, driven by new inner forces, equipped with new tools and resources.
7. Expert assistance is provided but only as needed. The expert does not give the group what *he* thinks it needs—his special course of lectures, for example—but stands ready to serve it as *its* needs determine."

In summing up the workshop we can say that its major note is to give *practical experience* in the creative use of audio-visual materials, equipment and resources.

CONFERENCE

A conference implies the exchange of ideas by a large group of people. The emphasis is upon lectures, papers and reports. The audience is passive. It is a broader term than either institute or workshop and includes both inexperienced and erperienced groups. A conference might include both an Institute and a Workshop if so planned.

INSTITUTE

An institute is a basic training period, more formal than a Workshop, and more specialized than a Conference, lasting two or three days. It is a teaching event with emphasis upon information, demonstration and inspiration. Workshops can be held in connection with an Institute as has been done in the Landour, Mussoorie, U.P., Institutes.

It might be said that in a city or Province an Institute would be held the first year for basic training and the second and subsequent years would lead into the workshop experience. Whether a Conference, Institute or Workshop use the "audio-visual method" and refrain from organizing verbal gatherings!

The Audio-Visual Aids Committee of the National Christian Council has organized institutes in Landour, Kodaikanal, Lucknow, Allahabad, New Delhi, Calcutta and Coonoor. Many more are being planned. In general the institute is planned in connection with the respective Provincial Christian Council. For example, the Calcutta Audio-Visual Institute, March 3–5, 1949, was organized through the efforts of the Secretary of the Bengal Christian Council, the Rev. B. C. Mukerji. In this type people come for the specific purpose of attending the "audio-visual institute". A different type of institute was held in Coonoor, April 27–28, 1949, under the sponsorship of the India Sunday School Union. In this situation Mr. V. M. Koshy was conducting a three-weeks' training school for Sunday School leaders. Here were the delegates and an institute set-up. The proposal was that the regular classes be closed for two full days and the National Christian Council's Audio-Visual Aids Committee come with leaders, equipment and materials to put on a concentrated two-day institute. Energy that might have been used in gathering people for an institute was thus saved. The success of this type of institute was so visible that it should recommend itself to other groups who are conducting various training schools for leaders. Invite the National Christian Council to move into your session for a special two or three-day audio-visual programme.

WHO SHALL SPONSOR THE INSTITUTE?

The answer to this question will depend upon the type of institute, that is, whether it is to be local, provincial, denominational or inter-denominational, whether it is to be a separate affair (as in Calcutta) or a section of an already organized body (as in Coonoor). In any case the National Christian Council must work through some "local" body who will do the local sponsoring.

Let us consider the institute which is conducted through the existing provincial council. First let us note the fact that the National Christian Council has recommended to each Provincial Council that a standing Committee on Audio-Visual Aids be appointed. Where this has been done the National Christian Council will work through this committee and where it has not been done a special committee should be created through the provincial council.

It is desirable to have representatives from all the church, mission and religious agencies in the region-to-be-served on the institute planning committee. The "Y" and "YW", publishing companies, Christian Literature Societies, colleges, hospitals, etc., can make valued contributions and should be on the sponsoring committee.

WHAT DOES THE SPONSORING COMMITTEE DO?

This local group is responsible for setting the date (in consultation with the respective National Christian Council secretary), the hours of sessions, arranging local accommodation for delegates, providing place for meetings, "blackingout" a room for daylight projection, securing available local equipment to save unnecessary transportation expenses, inviting distinguished leader to serve as programme chairmen, and assisting in the programme.

Usually three officers are appointed: (1) Chairman, (2) Secretary and (3) Treasurer. These with six or seven others make the working committee. One of the major jobs is that of publicity which involves notice in leading magazines, some two or three general letters to all schools, churches, missions and institutions in the area, and personal letters to key people.

Responsibility for the actual programme is assumed by one of the National Christian Council Audio-Visual Aids Committee members. This year the plan is that south of and including Bombay, the Rev. Ralph G. Korteling is in charge of institutes; while north of and including Calcutta, Dr. Donald F. Ebright will serve as programme director. The fullest use is made of local leadership and talent.

WHO SHOULD ATTEND ?

All persons having responsibility and places of leadership in the programme of evangelism or education, in church, mission or institution are invited. This will include district superintendents, bishops, ministers, missionaries, superintendents of Sunday Schools, "Y", "YW" and Salvation Army leaders, leaders of youth groups, managers and principals of schools, doctors and nursing superintendents, hostel wardens and responsible laymen. In fact, any leaders in church, school, mission, district, institution or Christian agency.

It is customary to have two evening programmes in large halls for the general community to attend and enjoy a programme of music, pictures and films. The purpose of these programmes is to carry the news of audio-visual aids to the entire community. What Christian congregation in India can sit unmoved through the showing of that great British produced religious film on the life of St. Paul, "The Way of Salvation!"

NOTES ON THE AGENDA ITSELF

Some of the items that will be presented at a typical institute might be considered:

1. WORSHIP: The emphasis is placed upon using audio-visual aids in worship, and sample programmes are demonstrated. As a visual aid to worship, a single picture such as Warner E. Sallman's *Head of Christ*, may be used as a flat picture or projected; or a series of productions of religious art masterpieces with musical background; or a motion picture such as "Hills and the Sea"; or nature scenes set to some theme such as "All Thy Works Shall Praise Thy Name"; or the Flannelgraph may be used with a meditation based on some New Testament portion as, "Behold I stand at the Door and Knock" Whatever material is used the objective is to demonstrate that worship can be guided and stimulated by a visual presentation.

2. WHAT ARE VISUAL AIDS? During the institute the wide variety of aids available will be emphasised. It will be seen that there is no "best" aid, and that each situation calls for consideration in choosing the best aid for that moment. Visual aids will be presented, demonstrated and discussed. They will fall under the following categories:

(*a*) *Non-projected visual aids*, including *pictures*, photographs, scrapbooks, murals, stained glass windows, etc.; *graphic materials*, including records, maps, charts, time-lines, posters, flannelgraph, bulletin board, black board, church or school bulletin; *objects* and models, including the diorama, worship centre and museum specimens; *dramatization*, including plays, pagents and puppets; and the field trip.

(*b*) *Projected Visual Aids*, including the epidiascope for opaque objects, 35 mm. slides and film-strips and 16 mm. movies both sound and silent.

(*c*) *Sound, recordings and amplification.*

3. PRODUCTION: Since the taking of photographs, enlargements and tinting; the taking of black and white and Kodachrome movies; and the vexing question "What Makes a Good Picture?" are so integral to the production of visual materials, time is given in the institute to consider this important aspect of the movement. This section will take increasing time because it is generally acknowledged that the best materials for any country are those produced in that country.

4. UTILIZATION: Unless the delegates return to their respective jobs determined to use audio-visual aids the institute has failed. Therefore the demonstration periods are most important, and emphasis is upon the use of material—be it pictures, field trips or movies.

5. WORKSHOP SESSIONS: In order to meet individual needs and interests the time given to practical workshop sessions is increasing. At a typical institute the following workshops are offered: (*a*) The Use of the Flannelgraph; (*b*) Cameras and How to Use Them; (*c*) Developing Film; (*d*) Enlarging Prints; (*e*) Tinting Photographs; (*f*) Taking Movies; (*g*) Editing Movies; and (*h*) Operation of Equipment. The difference between a "workshop" and "class" is that in the former you actually do the work. The delegate is given oil colours, cotton, turpentine and a print and learns to tint a picture "by tinting" Likewise in a Worship Workshop the delegate plans services, presents them and then critically discusses them. It is the "learning by doing" concept being used.

6. CARE OF EQUIPMENT: The peculiar climatological factors of the tropics where dust, heat, moisture and insects wage war against paper, leather, lens, metal, film, and wood require the consideration of the care of equipment and materials. This can be expanded to include the care of materials for use, such as filling of pictures and the care of maps. It also can include instruction to operators of projectors as to routing, cleaning and servicing, threading of film and changing of bulbs.

7. WHERE CAN MATERIALS AND EQUIPMENT BE SECURED? This most timely subject is a central part of every institute and large numbers of the latest catalogues are always on the book table. Sources of materials in India are emphasised.

HINTS ON THE INSTITUTE ROOM

The local arrangements committee will be faced with the question: "Which is the best room?" Here are some observations based upon experience:

(*a*) Can the room be darkened sufficiently for good projection by day? This does not mean "midnight dark" but sufficiently dark that you cannot read a book during the showing of a film. (*b*) Where are the electrical outlets and are they on circuits which do not "go dead" when the house lights are extinguished? (*c*) What is the current: AC or DC? Most silent projectors and slide projectors will use both but sound equipment will operate only on alternative current (AC). If the institute is to be in a DC area special arrangements must be made to "convert" DC to AC. This is possible with the right equipment. (*d*) Are there tables for projectors, equipment, and book display? (*e*) Can "rugs" be secured to lay over the electric wires to prevent tripping? (*f*) Can the seats be arranged to leave a centre aisle? (*g*) Is there ample space for the display and operation of equipment and the display of materials? (*h*) Ventilation in the darkened room. What are the sources for fresh air? (*i*) Protection. With much valuable equipment can the room be locked and the equipment left overnight in safety? (*j*) Are the rooms for "Men" and "Women" well marked and obvious?

THE INSTITUTE CLOSES

It takes time, energy and money to conduct an institute just as it takes these three magic elements to run a good audio-visual programme. Was it worth the cost? That will be seen the coming year as worship services are stimulated and made more effective; as inexpensive aids are increasingly used for more effective teaching; as Sunday Schools grow in number and influence through the visualization of the Bible; and as a variety of aids contribute to the growth of Christian character. Now we are all delighted that someone said: "Let's Have an Institute".

CHAPTER XXVI

WHAT MAKES A GOOD PICTURE?

W. P. RATH[1]

LET us consider this from a negative standpoint. The burning question in every beginner's mind is "What mistakes should I avoid in order to produce a photograph which my friends will admire"?

In order to attain any standard of quality as regards a well composed picture, there are a few basic principles to bear in mind. Other than these basic principles, good composition boils down to a personal treatment of a particular subject.

WARNING

Without having to go too deeply into the subject for the beginner in photography, I would like to say, that a word of warning to a beginner is sufficient to put him on the right track to good picture making.

1. Watch your background! Never allow it to subdue your main subject or the theme of the picture. In everyday picture making, backgrounds are something that one has to watch very carefully and can never overdo. It is not uncommon to see a tree or a lamp post growing out of your subject's head. This has happened merely because you do not watch your background.

2. Watch your horizon! Except for very special effects, the normal horizon in a picture should be parallel to the base of the picture in order to have the up-rights exactly vertical. This does not refer to trees reclining at an angle, but certainly does to the architectural subjects where it offends the eye to see a building falling over to the right or left.

3. Watch your subject! Let the main character in your photograph be your "main" character. Have all lines of vision leading toward it. Here again, except for special treatment the main theme of the picture should necessarily be as near to the centre of the format as possible.

After having observed and watched for the above three basic rules of composition, we can graduate into such things as pattern formations etc. Much has been said by writers who have eulogised different pattern formations of composition. Here again we have some very familiar ones: (A) the pyramid and (B) the letter "S".

ANGLE OF VISION is another matter which bears consideration when referring to pictorial composition. If one studies the great masters of art it is obvious to see how they have made the best use of angles of vision in order to express themselves in the paintings.

A LOW ANGLE OF VISION obtained by placing the camera as near to the ground as possible tends to give an atmosphere of extreme height to your

[1] Mr. W. P. Rath, 23 Outram Road, Lucknow, U.P., Deputy Transport Commissioner of the U.P., is a popular Cine photographer and leader in the audio-visual movement.

subject. This is very simple way of avoiding a clumsy or confusing background. It is customary when photographing little children and wishing to convey their happy mood to use a low angle of vision. The low angle of vision tends to express height, strength and happiness in your subject.

HIGH VIEW POINT would be the reverse of the low angle of vision. The camera is held as high as possible and therefore looks down on the subject. This treatment tends to minimize the importance of your background and consequently subdues the subject matter.

BALANCE is a very important part of good composition. A picture must have balance in order to look pleasing. Too much matter on one side or too much matter on the other puts a picture out of balance. Too much foreground or too much sky tends to unbalance your composition. Balance need not only mean balance of line but also of mass. That is balance of masses of high-light with masses of shadow. It is very distracting to the eye to see a large bald patch on one side of the picture in the form of a large portion of high-light with little or no detail in it. Patches of heavy shadows are likewise distracting.

In looking to your pattern formations always insure that the lines lead to your subject and not away from it. Do not include too much in your picture. The more you include the more trouble you are having arranging your picture as regards correct composition.

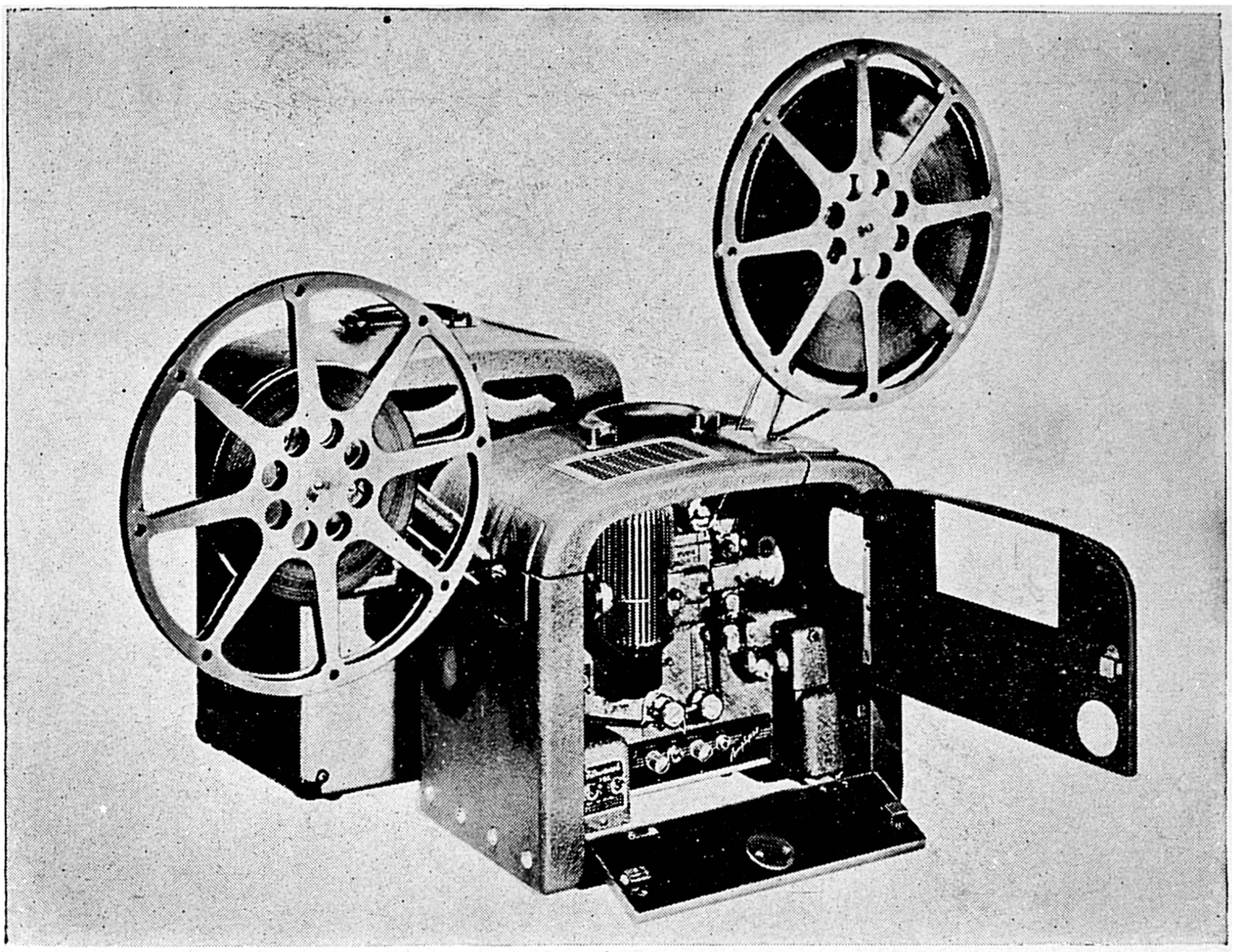
Soft focus is a treatment often resorted to for landscapes. (It is not always necessary to have a picture in sharp focus for it to be beautiful.) The effect is produced, however, not by wrongly setting your focus on the camera but with a diffusion filter or disc. This consists of a specially prepared glass in a filter mount which is slipped over your lens much the same as an ordinary filter.

Having borne in mind the errors to be avoided and the various pattern formations that suggest themselves, pictorial composition becomes largely a matter of how one sees a particular subject. In practice we are apt to view a scene with both eyes open. It is impossible, however, to do this and yet see a flat picture. The surest way of doing this is to close one eye. It takes a few seconds to adapt one's eyes to this little trick, but it is remarkable how easily basic faults are seen and angles of vision change when looking through one eye. As indeed your camera has only one eye. Sometimes a scene may look very pleasing when viewed with both eyes but changes completely when viewed as a flat picture with only one eye. What happens? You immediately move around and change your view point and more often than not improve your picture several hundred per cent.

Take that second look. It is important. Do not release your shutter till you have checked off the faults you might be committing. This is an easy way of getting better pictures in the future.

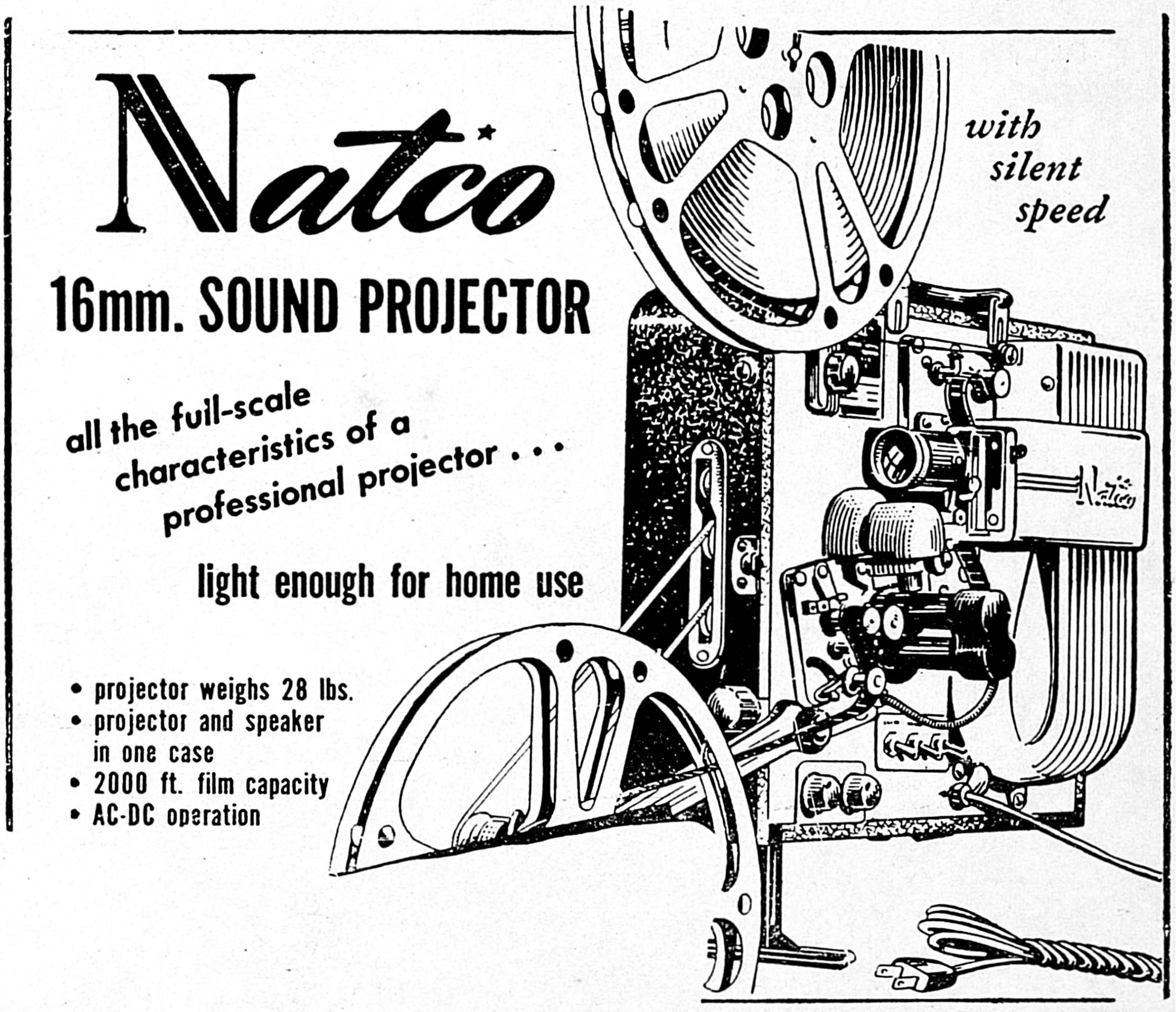
Pictorial composition is something to be taken by the horns rather than to be considered frightening. On entering a saloon of photography one often suffers from a certain complex thinking that the man behind the camera of the exhibits must naturally have known a great deal more about composition

than you do. You are mistaken. He has only stopped to observe his scene once more before he clicked his shutter and then he tried to be as creative as possible. He has developed his sense of composition and because of this you have come to the saloon to see what he has exhibited. So let us not fear pictorial compostion but rather let us develop the habit of trying to compose every shot we take as near as possible to a good picture as we can.



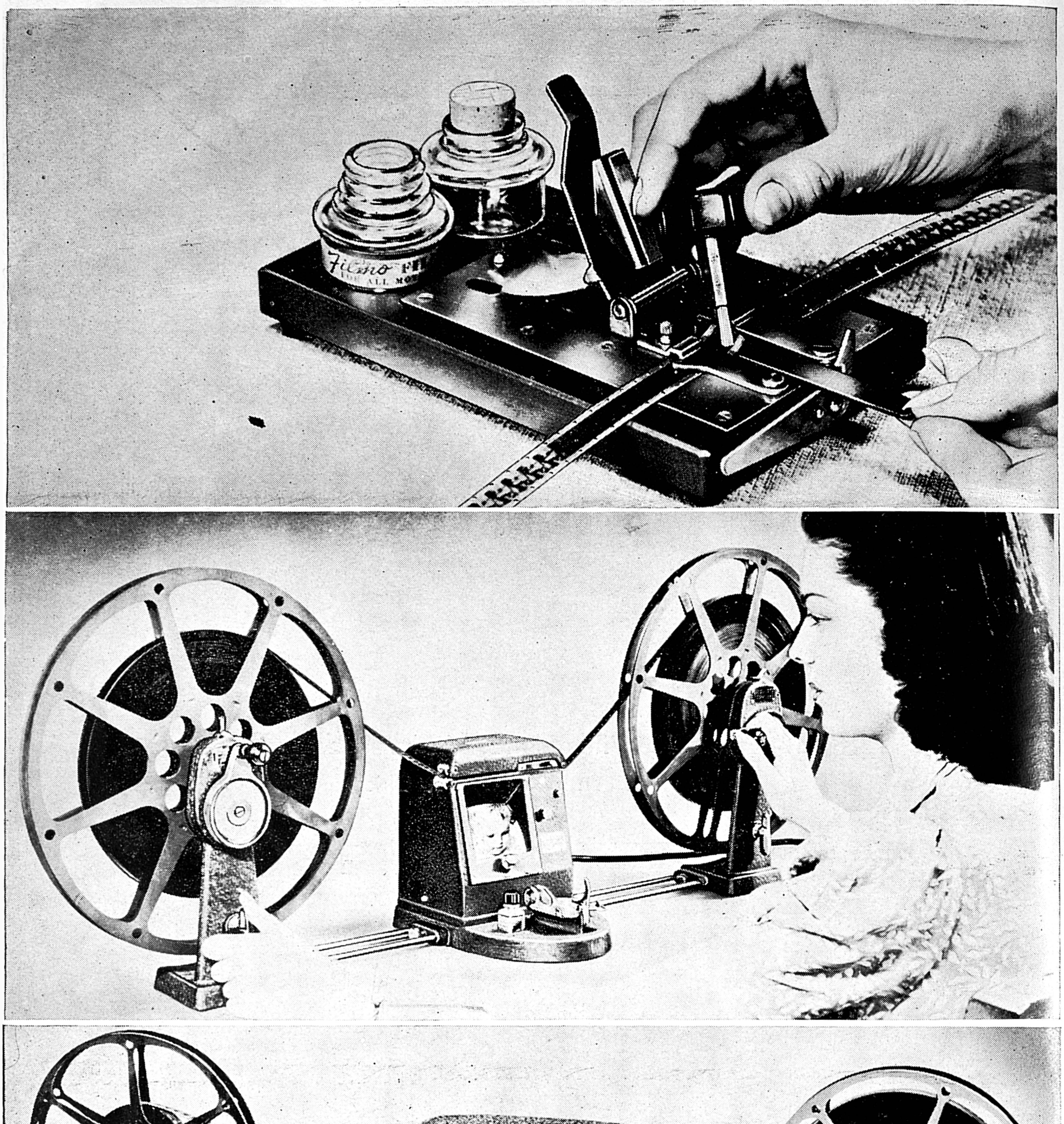
Bell and Howell 185 Filmosound, 16 mm sound Projector

Courtesy: Bell and Howell, Inc., Chicago, Ill.



Natco 16 mm Sound Projector typical "Light weight" projector

Courtesy: Natco, Inc., Chicago, Ill.



Splicing Equipment such as the Bell and Howell Model 72 L, Splicer, Filmotion Editor and 8mm Filmotion, Editor Make film Production a joy.

CHAPTER XXVII

HINTS ON FILM PRODUCTION

Adapted from KENNETH COFOD by H. R. FERGER[1]

THE purpose of these suggestions is to help you secure the kind of motion picture material that will make the editing and completion of the films for use either on the field or in the homeland easier and more profitable.

(2) It is very necessary to write out ahead of time a script treatment for each production, and so far as possible a full shooting script. This will have to be revised several times even up to the time of shooting. Be sure to develop lots of HUMAN INTEREST and ACTION. Drama is necessary but beware of becoming melodramatic. There must be SEQUENCE or CONTINUITY—avoid a hodge-podge of unrelated shots.

(3) The treatment outline should be broken down according to INTRODUCTION, BODY, and CONCLUSION. Each of these must be carefully deveolped. Always bear in mind that (especially for silent films) the PICTURES MUST TELL THE STORY, as long, explanatory titles are impossible.

(*a*) *Introduction*: This is the preliminary part of the film. It must be sure to establish locale, characters, atmosphere, objective, conditions, etc. Remember that the audience does not know any of these things until the film tells them. Naturally, narration (in the talking film) can help in this development, but the pictures must take the lead.

(*b*) Body: This is the main part of the film. We should have the audience interest at this point and we tell our story. We get to know the characters better; we develop detail in locale and atmosphere and a CLIMAX. This is the part of the film where the objective must be achieved.

(*c*) Conclusion: Here the objective of the film is summarized. The appeal is made to the audience. This should be done in a very subtle way. The audience must not be left hanging. The purpose of the film must be satisfied.

(4) Once the treatment outline has been set, develop a SHOOTING SCRIPT in detail, listing each shot alongside of the script idea. Here you will consider LOCATIONS, CHARACTERS, ACTION, etc. Write them all down on paper. Get your picture requirements organized and scheduled.

(5) In conclusion, the pictures will dictate the final writing of the script. Changes at the time of shooting are inevitable as certain ideas cannot be worked out or new ideas occur to you.

[1] Rev. H. R. Ferger, B.D., M.A., Jumna, Allahabad, has been loaned by the Synodical Board of the North India American Presbyterian Mission and the Presbyterian Board of Foreign Missions in the U.S.A., to be the Field Director for North India of the Audio-Visual Aid Committee of the National Christian Council. He is a pioneer in visual aids, a noted photographer and skilled cinephotographer.

(6) A few more suggestions:

(*a*) The storage of raw film and shipment of exposed film is of extreme importance. Keep all film inside of a tightly closed metal box—also the camera when not in use. Place in this tin any of the newer materials on the market to absorb humidity. Or use a pound or more (depending on the size of the box) of ordinary rice. Heat this in an oven or in an open vessel over a fire, stirring constantly, until it begins to turn slightly brown. Allow this to cool in a covered vessel. Put it in a cotton bag in the box. This is a very effective absorbent of dampness. Reheat the rice (or other material according to directions) occasionally.

(*b*) If you are using a new camera, get thoroughly acquainted with it before shooting. It is of vital importance that you shoot one or two films to check on film stock, lenses, camera mechanism, exposure meter, etc. and have these developed before you do any serious work.

(*c*) Use an EXPOSURE METER constantly to check on the light. Your judgment might be good but we must double check.

(*d*) A complete record or DOPE SHEET is essential. In this give every bit of information that will be of any possible use in completing the project. List the date of shooting, location, characters of importance (give accurate spelling and phonetic pronunciation), type and length of shot, lens used, number of takes specifying which you believe will be the best take), type of stock used, whether interior (natural or artificial light used) or exterior exposure.

(*e*) Only direct people being photographed when necessary. Try to keep all action natural. Of course people should not look into the camera. Do everything possible to avoid this. It is well to break up any complex action into a number of small parts. Plan and shoot each part before proceeding to the next. Do not attempt to edit pictures in the camera. Do your shooting in the earliest or most convenient order.

(*f*) Use a TRIPOD at all times—except when a shot is important and its use is impossible. In bazaars or other places when it is necessary to go into action quickly the three legs can be held together, these acting as tripod.

(*g*) Avoid shooting into the sunlight as such shots cannot be used. However pictures shot with back light properly exposed are effective. Shots with an empty foreground are unappealing and cannot be used.

(*h*) DO NOT pan or tilt camera—this is the general rule. This can be used to follow action or for other special purpose, when your movement is steady and properly timed (neither too slow nor too fast). Be sure however to expose sufficient footage before and after movement so that the shot before and after the pan or tilt is usable. The pan, tilt or swish (very fast pan) are good transitional effects when planned but should not be excessively used.

(*i*) Shoot several shots which might be used as main and end title backgrounds. The main title shot should be in character with the general theme of the story. Avoid shots with movement as they usually give an undesirable effect when titles are superimposed on them. The end title shot should suggest the conclusion of the general theme of the story.

(*j*) The length of each shot is usually determined by the action in it. Always shoot somewhat more than you feel will be necessary. Never hesitate to retake a shot if you are not fully satisfied with the action. Action entering or leaving the scene must be done according to editorial requirements. Be sure to keep the action moving. Avoid any action in the shot that might conflict with the main action. Beware of confused action.

(*k*) Keep the action in and out of the scene consistent; i.e., if the action is moving towards the camera in one shot, it must continue to move towards the camera in the next shot. Action must have continuity and be natural.

(*l*) Plan the action for each shot before you shoot it. It is usually a good practice to rehearse action to be followed. Often the first take is the most natural. Tell your actors what you want them to do but let them do it in their own natural way. The action must be complete in each shot, in the succeeding shot, overlap or repeat the same action. This will enable the shots to be edited for continuity from one shot to the following. A jump in action from one shot to another is very disturbing and interrupts the continuity of the pictures.

(*m*) Shoot many CUT AWAY shots. This is one of the most important requisite for film editing. Cut away shots are close shots of faces, feet, hands, signs, etc. Also shoot inserts of newspaper headlines, booklets, etc. This type of a shot makes it possible to interrupt the action and still maintain continuity of pictures. Continuity of action becomes monotonous. With close shots we can develop a favourable tempo in the editing of the picture.

(*n*) HUMAN INTEREST in pictures is essential. Shoot children with happy faces, elderly people with aged faces, poor people with shabby clothing, migrating people with feet travelling along the road, farmer holding soil—face looking up at the sky—hand holding soil, street scenes—signs—building, etc., curious vehicles, strange head-dress, etc. To sum up; detail is very important: shoot lots of closeups, particularly faces.

(*o*) It is useless to shoot pictures in bad weather. We must have a constant high picture quality in these films. Good natural light conditions are important for quality pictures. Kodachrome requires maximum light conditions for good results. Beware of shadows. If conditions are not good for shooting colour, do not waste the stock.

(*p*) Do not try to shoot optical effects in the camera. They are usually a waste of time and effort. These can be much more easily produced in the laboratory in making points of the film. These effects (fade out, fade in, dissolve, etc.) are used as transitional effects. Wherever a natural transitional shot presents itself, be sure to shoot it. This will add variety to the film.

(*7*) EDITING AND COMPLETION OF FILM. To complete the production of a film we must consider the elements that compose the finished product. These are the pictures, and for silent films the titles. For sound films there are the script or narration, the background music and sound effects. Good composition of these elements will result in a successful motion picture.

Wherever possible give suggestions for the titles or the narration, the background music and the sound effects. Authenticity is a vital factor.

(8) IN CONCLUSION, the foregoing has been written to aid the camera man in shooting complete picture coverage. Most likely many of these suggestions will not contribute anything that he does not already know. However it is important that the camera man and the producer work together. Only with complete co-operation can there be a successful film. In every instance, the camera man must use his own judgment in making story aterations and interpreting pictures to tell the story.

CHAPTER XXVIII

FIRST DAYS WITH A CAMERA

H. Ross Bunce, Jr.[1]

THOUSANDS of words have been written for the individual who is passing his first days with a camera. The following words are not intended to add to this extensive library but to condense the few main thoughts which seem to be important for the beginner. It may be an over-simplification of photography but in all truth these words, when referring to the technical side of picture taking (as separate from the artistic, pictorial side) can be reduced to the discussion of two variables the understanding and control of which will give the beginner complete confidence in the technical outcome of his negatives. These two variables are: (1) *focus*, and (2) *exposure*.

FOCUSSING

Without going into all the mysteries of light refraction, the *lens* of a camera serves to bend the light rays spreading out from a single point back again into an image of that point. If there is a fixed point and a fixed surface on which the image of that point is to fall, a lens must be inserted between the point and the surface at a distance far enough from the surface to bring the rays of light into an exact image of a point on the surface. This distance from surface to lens depends on the distance from the lens to the original point. In a camera the surface is a piece of sensitized film, the fixed point is a subject and the camera is designed in such a way that the film-to-lens distance can be varied to match a corresponding variance in the lens-to-subject distances with which the camera will cope. This variable adjustment of the lens is called *focussing*.

Three general methods are in common use to achieve an accurate focus:

1. A range finder is used which may or may not be coupled to the lens. This is an instrument which takes advantage of the ancient navigational principle of triangulation to determine distance of subject from camera. A reflection of the subject is superimposed on a direct view of the subject by adjusting the angle of a tiny mirror. This adjustment moves a scale to indicate subject distance. In a coupled range finder the adjustment of the mirror also adjusts the lens to a proper distance from the film surface to match the subject distance.

2. All press cameras, studio cameras, and various types of reflex cameras use a method employing ground glass on which the image of the subject appears just as it will appear on the film. As one camera advertises, it gives a preview of the picture. If the ground glass image is blurred, the lens is

[1] Rev. H. Ross Bunce, Jr., B.A., B.D., educated in Albion and Yale Divinity School has had a long interest in photography. He is Warden of the Christian Boys' Hostel in Budaun U.P., serving under the Methodist Church in Southern Asia.

adjusted until the lines are sharp thus insuring equally sharp lines in the negative image.

3. On all cameras where range finders or ground glass are not available the lens-to-subject distance must be estimated or measured and the lens-to-film distance set by the use of scale which is marked with the various lens-to-subject possibilities. In the first days with a camera distance guessing should be kept to a minimum and some device employed for determining the subject distance within a foot or so of accuracy. This may be the simple expedient of pacing the distance with an even stride, or a piece of stout string with knots tied at five foot intervals can be given to the subject to hold while the other end is carried toward the camera position. On all subjects less than ten feet from the camera a tape measure should be employed to give the distance within a foot of accuracy unless the lens in use has a focal length of 50 millimeters or less. (Focal length of a lens is usually marked on lens mount).

DEPTH OF FOCUS

There is one other aspect to focussing which should be given full attention for its effect on the quality of pictures and its use in securing negatives with an over-all clarity and brilliance is often ignored. This is the characteristic of all lenses called *depth of field* or *depth of focus.*

The distance from the point nearest the camera which is in reasonably sharp focus to the point farthest from the camera in reasonably sharp focus is called the depth of focus. The heart of the focussing problem is the decision on how much of the entire picture area should be included in this depth and how much left out, and the second decision on how this effect will be achieved by proper adjustment of the camera.

The logical beginning of this explanation is behind the front element of the lens where a delicate little mechanism of interlocking steel leaves work in and out in a rotary pattern to provide a hole or *aperture* of varying diameter in the center of the lens tube. One purpose of this device is to control the amount of light reaching the film during the interval of time provided by the shutter. The other purpose is to vary the depth of focus.

The arm which adjusts the diameter of this aperture moves along a scale on the lens mount consisting of a series of numbers preceded by the symbol *f/*. This symbol indicates the relation between the diameter of the aperture and the distance of the lens from the film when the lens is focussed on infinity. As the camera becomes more familiar curiosity will increase about the physical properties of lenses and the meaning of such terms as *focal length* and *lens speed*, but in the first days all that need be remembered is that the *smaller the f/ number the larger the diameter of the aperture and the larger the f/ number the smaller the diameter.*

On most modern cameras in the medium and high priced range a depth of field scale is made as a part of the focussing mechanism. It might appear on the lens barrel if the lens-to-film distance is adjusted by screwing the lens in and out of a threaded tube. Or it might appear as a dial surrounding the focussing knob if the focus arrangement racks the tube in and out by

such a device. Or it might appear as an enamelled chart attached to the camera back or side. If such a table is not on the camera itself it almost certainly will appear in the instruction manual. The system in general use when the scale is part of the focussing mechanism provides a stationary plate marked with all the *f/* numbers on the aperture scale counting away in both directions from a center line, and a moving plate which carries all the possible lens-to-subject distances in order past the center line of the former. If this depth scale were stretched out in a horizontal line it would appear somewhat as follows:

	(Inf.)												
Moving Plate:	00	60	30	20	15	10	8	7	6	5	4½	4	3½
Fixed Plate:		22	16 11	8	5·6	4 ↑	4	5·6	8	11	16		22

When the proper distance for the subject has been located opposite the center mark (in this illustration the camera is focussed at 10 ft.) the depth of field can be determined by consulting the distance opposite the two places on the stationary plate where the *f/* reading then in use on the aperture scale is found. In the above illustration, assuming that *f/11* is in use, the depth of field will be known to have a far limit of about 24 ft. and a near limit of about 5½ ft. This means that everything from 5½ ft. in front of the camera to 24 ft. in front of the camera will seem to be in focus in the finished negative. Everything outside of that area, whether closer to the camera than 5½ ft. or farther away than 24 ft. will appear to be blurred.

One other very interesting characteristic of lenses will be noticed on examining any depth of field scale. The smaller the aperture in use the greater the distance between the nearest point in focus and the farthest; and conversely, the larger the diameter of the aperture in use the shorter this distance.

USING DEPTH OF FOCUS

Two picture taking situations suggest themselves as illustrations of the way in which an understanding of depth of focus can be employed to serve the photographer:

A. A portrait of a village boy is possible if taken in a hurry and the only available background is a cracked and crumpling mud wall which by itself might have pictorial interest but which is far too distracting to enhance the features of the boy. This wall is judged to be about 15 ft. from the camera while the boy is standing 10 ft. from the camera. Lighting conditions are such that an exposure of 1/50 of a second at *f/16* is about right. Under these circumstances the wall will become a far better background if it is thrown out of focus by holding outside the far limit of the field of focus. Three procedures may be followed: (1) By consulting the depth of field scale it will be determined that a subject distance of 10 ft. at an aperture of *f/16* (on a camera with a 75 mm. lens) gives a far limit of about 20 ft. and a near limit of 7 ft. *if the camera is focussed on the subject.* If, however, the subject distance is made the far limit of the depth of field by (in this case)

bringing the 10 ft. mark on the moving scale opposite the *f*/16 mark on the stationary scale, then nothing beyond that 10 ft. mark will be in focus, thus including the boy but excluding the wall at 15 ft. (2) An even better procedure might be to maintain the focus at the subject distance of 10 ft. but shorten the depth of field by increasing the diameter of the aperture. By consulting the scale, it may be ascertained which aperture on the far side of the center mark gives a far limit which is less than 15 ft. when the center mark is on 10 ft. With the 75 mm. lens in use it will be shown that any aperture of *f*/8 or larger will have a far limit to its field which is inside 15 ft. For allowing a good margin between this limit and the wall, the *f*/5.6 reading is selected whose far limit is about 12 ft. when the camera is focussed on 10 ft. Again the wall will be excluded from the field. (3) Perhaps the simplest procedure is to move the camera closer to the boy and focus accurately on him. When the depth table is adjusted for a focus of 5 ft. the far limit of the field, even at the smallest aperture, will be no greater than 6½ ft. in front of the camera with a 75 mm. lens. The wall is considerably beyond this limit. However, the first two procedures are very helpful to know in many situations where lens-to-subject distance is fixed and similar results are desired.

Two notes should be added at this point:

(1) If the procedure outlined in A (2) above is followed, the shutter interval must be decreased in order to compensate for the increase of light admitted through the larger aperture. In this illustration the aperture was increased from *f*/16 to *f*/5.6, a distance of three stops on the *f*/ scale. This means that eight times as much light will be admitted (each stop doubles the amount of light admitted), therefore the shutter interval must be decreased eight times. If 1/50 of a second was correct at *f*/16, then 1/400 of second is correct at *f*/5.6 (each shutter interval decrease decreases the light by half). (2) A rule-of-thumb measurement for depth of field which is convenient to know if a depth table is not available places the subject roughly one-third of the way into this field. This means there will be twice as much in focus behind the subject as in front, the exact distances being determined by the aperture in use.

B. The second picture situation consists of a mule train moving along a mountain ridge with the snow peaks in the background. The mule train should be as close as possible to the camera to preserve detail but not so close that the snow peaks are excluded from the range of the lens's focussing power. This situation requires as deep a field as the camera possesses, therefore the smallest aperture must be used. It is also obvious that the farthest limit of the field must be *Infinity* (indicated by the sign oo or the abbreviation Inf. or by the 100 ft. mark on the scale). This is the point of focus for lens beyond which everything included in the lens range will seem in focus. On most cameras there is no further adjustment for focus necessary for any subjects beyond the 100 ft. mark which means that Inf. focus has been reached. If this is the farthest limit of the field then the Inf. mark is brought opposite *f*/22 which is the smallest reading on the *f*/ scale and the distance opposite the *f*/22 on the short side of the center mark is consulted to determine the near limit of the field. On a 75 mm. lens, this reading would give about

8 ft. as the near limit which means the camera can be no closer to the mule train than 8 ft. and maintain the animals in focus. If this procedure is compared with the traditional amateur practice of focussing either for the mountains (Infinity) or for the mule train (8 ft.) the traditional practice will be revealed as a waste of field depth. For at Infinity focus, the nearest limits of the field will be about 15 ft. which is 7 ft. farther from the camera than necessary, while at 8 ft. the far limit of the field would be no more than 15 ft. from the camera and the mountains would be hopelessly blurred.

EXPOSURE

Two adjustments must be considered together in discussing exposure for the amount of light reaching the film is dependent on the interaction of both. The first to consider is the *shutter*. The mechanism is usually one of two types—focal plane, or between-the-lens. The former consists of a piece of cloth or flexible metal in which slits of varying width have been cut. A spring device draws one of these slits across the surface of the film permitting light to enter as it passes. The relationship between the tension of the spring and the width of the slit gives a highly variable number of shutter speeds from as slow as 5 seconds on some cameras to a speed of 1/1200 of a second. The latter type of shutter is a thin steel disk, or combination of disks which slide between the front and near element of the lens actuated by a complex system of gears and springs. The speeds from such shutters vary from 1 second to 1/400 or 1/500.

There are two chief functions of the shutter: (1) Stopping subject and camera motion by limiting exposures to intervals short enough to exclude more than a single record of a moving point of light as it travels across the picture area; and (2) Controlling the amount of light reaching the film through a given aperture.

Concerning the control of subject motion a few basic suggestions can be given:

1. Pedestrians move about four miles an hour, which means that people walking TOWARD the camera require about 1/50 of second exposure to prevent them from blurring, people walking DIAGONALLY across the picture area require a shutter speed of 1/100, and people walking directly across the picture area require 1/200.

2. Tongas and other horse-drawn vehicles move at moderate speeds of six to eight miles an hour which require (under the above direction classifications) 1/100, 1/200 and 1/400 respectively.

3. Motors and trains that are moving at 60 MPH require 1/400, 1/600 and 1/1000.

4. It is dangerous to expose groups of people in even stationary poses at less than 1/50 if clean cut results are expected. And wherever light conditions will permit, even shorter intervals of 1/100 or 1/150 should be employed to lessen the chances of random gestures and movement taking the edge away from the lines.

USE A TRIPOD

Another source of motion in a picture is, however, often ignored in spite of repeated warnings by the manufacturers of photographic equipment. A camera held in the hand will move enough, no matter with what care it is treated, in any interval shorter than 1/50 or a second to soften any lines which should be sharp. This will be a source of particular disappointment for negatives destined to be enlarged. For consistently clean, sharp pictures no advice is more important than to make habitual use of a tripod.

The second control over light to consider is the *aperture* discussed under depth of focus. This control is used when the nature of the subject requires a fixed shutter speed to stop motion, or under most circumstances of picture-taking where depth of field is not a primary concern. It is much simpler to operate a camera at a standard shutter speed and adjust for light variations with the aperture arm.

It is very convenient to memorize the relationship between the aperture and the shutter so that variations in one dictated by the nature of the subject can be compensated for by proper adjustment in the other to keep the exposure constant. Each shutter speed interval beginning with the slowest permits *half* as much light to enter as the preceding interval. Each aperture number (called *stops*) beginning with the smallest opening (largest number on the scale) lets in *twice* as much light as the preceeding opening. This is a very convenient system of light measurement which allows a change of one stop on the *f/* scale to be balanced by a change of only one stop on the shutter scale. The photographer need only remember the direction each lever should be adjusted. Every time the *f/* lever is moved to open the aperture (from a larger to a smaller *f/* number) the shutter lever must be moved from a slower to a faster interval to balance the light. (This of course assumes that no change in the amount of light reaching the film is desired.) As an example *f/*16 at 1/50 of second lets in no more or no less light than *f/*5·6 at 1/400 of a second.

TIME AND BULB

A note at this point may help if it refers to the letters T and B on the shutter adjustment scale. T means Time and indicates that the shutter opens when the release is pressed and does not close again until the release is pressed a second time. It is a convenient arrangement for long time exposures of more than 10 or 15 seconds. B means *Bulb* (taken from the days of studio photography using pneumatic shutter releases) and indicates that the shutter will open when the release is pressed and close again when the pressure is removed. It is convenient for short exposures of 2 or 3 seconds.

The heart of the exposure problem, as depth of field is the heart of focussing, is determining how much and for how long the light reflected from the subject should be allowed to touch the emulsion of the film. Exposure meters have progressed a long way toward reducing this variable to scientific consistency. But meters are not the absolute answer to exposure and all photographers should practise the art of estimating proper exposure. This

will not only help in those times when a meter is unavailable or requires too much time for the temporary nature of the subject, but it will also help in using a meter with discretion when it is available. For a picture area is composed of many different tonal areas which, on a meter's photo-electric cell, are all lumped together in one big average reading—unless the meter is used selectively. The practice of estimating which employs separate observations of the tonal areas with the intention of emphasizing some and subduing others will also discriminate the various areas from which a meter should be allowed to accept light.

The best way to develop skill in estimating light intensity is to follow the classifications of light source and light reflection provided in the instructions accompanying most packages of film. Accurate data on each exposure should be kept and compared with the finished negative to corroborate judgement. This should be continued until negatives begin coming through with consistent technical excellence. These exposure tables are based on the quality of the sun (light source) and the reflecting ability of the subject. For indoor photography, the exposure is based on the distance of the light from the subject and the reflecting quality of surrounding walls. As a ready reference the exposure sheet from a Kodak package will look like this:

	Bright Sun	Hazy Sun	Cloudy-Bright	Cloudy-Dull
Brilliant Subjects	*f*/22	*f*/16	*f*/11	*f*/8
Bright Subjects	*f*/16	*f*/11	*f*/8	*f*/5.6
Average Subjects	*f*/11	*f*/8	*f*/5.6	*f*/4
Shaded Subjects	*f*/8	*f*/5.6	*f*/4	*f*/2.8

These apertures are to be used with the following shutter speeds depending on the type of film in the camera:

1. Panatomic-X (slow-speed, fine grain speed group) 1/25 of a second.
2. Verichrome or Plus-X (medium-speed, ortho or pan group)—1/50 of a second.
3. Super-XX (high-speed, pan. speed group)—1/100 of a second.

The quality of the sun on these tables is fairly descriptive, but the reflecting power terminology is subject to some arbitrary limits. *Brilliant* refers to a great amount of water or light colored roadway, or snow in the picture area. Also to distant landscapes and mountains with very little foreground. *Bright* considers the same scenes as *brilliant* with the addition of people who are less reflective and of foreground material. *Average* subjects include almost all normal out-of-doors photography of people and animals and near-by scenes of routine activity provided there is no shade. Shaded subjects are those where there is no surrounding object to cut out reflected light from the sky but enough protection from the direct sun to keep sharp contrasts out of the picture area.

This is a helpful table and quite accurate if used wisely, but a few exceptions should be noted. In the first place, if the sun is very bright error on the side of under-exposure is apt to occur. Especially in this country the light seems much stronger than it actually is and many pictures contain black

masses of shadow without detail. Where there is quite a bit of shadow in the picture, it is better to increase the aperture one stop and chance the over-exposure of high-light areas. Eyes are also likely to be failable in the other direction in the shaded areas where light will not seem as strong as it actually is. It is very difficult to estimate reflected light. In such circumstances it is probably better to decrease the aperture diameter by ½ or even 1 stop.

In judging the finished negatives for comparison with the original exposure data it is necessary to watch both shadow and high-light area carefully for they are the clue to correct exposure. If the shadow areas (the thin or even transparent parts of the negative) are completely blank or show only faint traces of picture, the negative is under-exposed. If the high-light areas (the black, dense sections) are so blocked up that it is difficult to see the outlines of a light bulb through them then the negative is over-exposed.

It is entirely appropriate to mention a variation from traditional picture-taking which will increase immeasurably the quality of most routine negatives. Instead of positioning subjects in raw sunlight with all its confusing array of intense contrast, it is far better in the first days with a camera to use the open shade classification. The light is far more even and free from heavy tone separation while exposure under very different subject conditions tend to be more consistent.

FILMS AND FILTERS

In considering the correct film to use for varying picture conditions three factors should be understood: (1) speed, (2) grain and (3) colour sensitivity. Speed depends on the chemical sensitivity of the film emulsion and can usually be determined by the numbers on the package or by the rather stereotyped labels used by various manufacturers. These film speeds fall into three main speed groups; low, medium, and high. All American film is measured by a system developed by the Bureau of Standards called ASA. Under this system, the popular roll films are numbered as follows to correspond to the three groups; 25, 50, and 100 (there may be a difference of ten or so one way or the other depending on the company, but such differences effect the exposure in no practical manner). Continental and English films are more likely to be marked with a measurement called Degrees Scheiner than any other. Under this system the three groups (again with slight variations between manufacturers) are given 27°, 30° and 32°.

These film groupings can sometime be recognized more easily by the trade labels which are in use by the various companies supplying the Indian market today:

	Kodak	Ansco	Gevaert	Ferrania	Ilford	Agfa
High-Speed	Super-XX	Superpan Press	Ultra-Pan	Super-panchro	H. P. 3	Isopaniss
Medium-Speed	Verichrome	Plena-chrome	Super-chrome		Selo-chrome	Iso-chrome
	Plus-X	Supreme	Panchro-mosa		F. P. 3	
Low-Speed	Panatomic-X				Pan F	Isopan

The exposure difference between each of these groups is one shutter interval, each group being, for all practical purposes, just twice as fast as the preceding one.

The property of *grain* in a film is visible on the negative as tiny dark clumps or dots giving somewhat the appearance of a coarse newspaper picture. The slower the emulsion speed of a film the less grain appears, the faster this speed the more grain appears. Although this graininess of negatives can be controlled to a great extent by the development process it still holds that small negatives destined for enlargement should come from the medium-speed film groups. The low-speed group in fact is designed solely to produce tiny negatives which can be enlarged to many times their original dimensions without showing grain.

Colour sensitivity refers primarily to red sensitivity. A film that is called *orthochromatic* ("ortho") is sensitive in varying degree to all colours EXCEPT red. A film called *panchromatic* ("pan") is sensitive to all colours. The primary difference in these films of interest to beginners is in processing and rendering of sky tone. With ortho film a red light of proper intensity can be used to see the processing operations, with pan film processing must take place in absolute darkness. Ortho film, also, fails to record all of the red light in the sky and thus is unable to make as deep a contrast between the white of the clouds and the blue of the sky as pan film can make owing to the amount of red light involved in this contrast. And a final difference is, of course, that the dramatic effects of sky rendition possible with a red filter are possible only on film sensitive to red. On the trade label list above all the films are *panchromatic* except the ones ending in "chrome" which are *ortho.*

The chief use of colour filters in black and white photography is to deepen sky tone. A blue sky is rendered as a very pale grey unless some or all of the blue is held back and prevented from exposing the film. Such selective under-exposure of the sky area is the method employed in most photographs where pleasing cloud formations have been captured. Only blue sky, however, can be controlled in such a way for an overcast, grey sky will penetrate any filter and expose as it looks to the eye. If sky is blue, a yellow filter will hold back some of the light, a red filter will hold back most of the blue light, and a green filter will act about as a yellow filter but at the same time will under-expose all the green foliage in the picture thus giving a greater contrast between sky and trees than a yellow filter. The effect of the red filter (very dark or even black sky) is generally too dramatic for most situations.

Each filter has a "factor" which refers to the length of time the exposure must be increased to compensate for the light loss through that filter. If light conditions require an exposure of 1/50 at the given aperture then the same picture taken through a filter with a factor of 2 would require 1/25.

There is, however, a qualification to this operation of filter factor which should receive wider attention. With a light filter having a factor of 1.5 or 2 (such as the light yellow sky filters) it is quite possible to maintain a normal exposure even though the filter is in use. The latitude of the film will adjust the appearance of the subject to the slight under-exposure while this

under-exposure will serve to increase the depth of sky tone for which the filter was used in the first place. It is also possible, if we attempt any compensation at all with such a filter to overcompensate and eliminate the effect of the filter entirely.

These are some concluding thoughts which might serve to guide the first days with a camera into more days of creative pleasure and self-expression:

1. Develop a routine for adjusting the focus, shutter, and aperture before every exposure until it becomes habitual. One man suggests saying FLASH: Focus, Lighting, Aperture, Shutter, Horse Sense.

2. Give as much attention to back-ground as to a subject and foreground. Avoid as much as possible all divided tonal areas and confusing, "busy" detail.

3. For all subjects where motion is occuring or is likely to occur set shutter speed first and let this determine the proper aperture for the light available. For all subjects which remain motionless and thus make shutter speed optional let the depth of focus requirements determine the proper aperture and then regulate the shutter to compensate for the light. Where neither depth of field or subject motion is of any consequence, it makes very little difference which combination of shutter and aperture is used to control the light except for the admonition that no hand-held camera should ever be exposed at less than 1/50 while 1/100 is even better. A good practice is to keep the shutter at 1/100 wherever possible and adjust for all light variations with aperture.

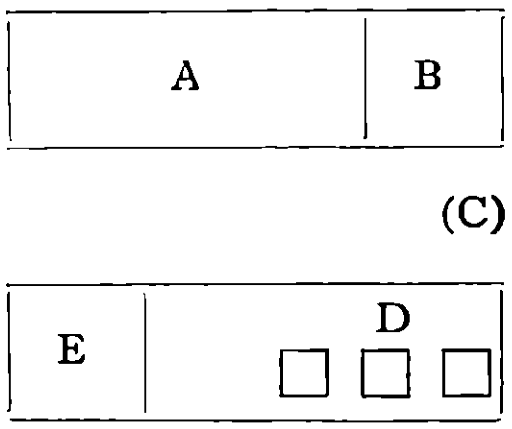
CHAPTER XXIX

PHOTOGRAPHIC PROCESSING IN RURAL INDIA

Kenneth E. Weigel[1]

IF you think you must have a place in the city with electricity, running water, and a thousand other expensive gadgets before you can develop and print your own pictures—don't believe it! It is the purpose of this chapter to give you enough information so you can do it even in the uttermost parts of the world, wherever preaching the Gospel may take you. This does not mean that all will be rosy but it is hoped that the information given here will be a boost in that direction. As far as is known several items presented here have never appeared in print before. All but a few of the chemicals mentioned should be found in any bazaar that boasts of one competent photographer. No attempt has been made to discuss details that are bound to vary with each individual. To those who are blessed with film tanks, auto-focussing enlargers, voltage controlled timing devices, and the like, we have no advice except to read the directions that come with them. If the general idea is clear enough to help national workers with limited means to develop and contact print their own pictures one goal will have been made. The other goal is to help those who feel the need to make enlarged photographs of high quality. The paragraphs have been numbered for easy cross-reference.

2. There is more to a darkroom than keeping the light out. It is a specialized laboratory. Almost any room can be used at night. Cramped quarters should be avoided but a compact arrangement makes working easier. Figure 1 shows an ideal set-up. This principle can be adapted to any available space of about 7 x 9 feet. A sufficient area should be allotted for a paper cutter, and the handling of negatives and printing paper. See (A). The printer or enlarger should be nearby (B). A light, tight drawer in the table under the enlarger is handy for paper that is being used and to stack duplicates so they can be developed together. The trays for processing solutions (D) should be far enough away so that stray splashes will not fall on the enlarger or other equipment. When much work is to be done a stool (C) has well known advantages. If drying is to be done in the darkroom racks can be made beneath the bench (E). Drawers in the tables and shelves above them make for convenient storage. Used chemicals and wash water should be drained well away from the building through a rubber hose to prevent damage. Many chemicals leave ugly stains. Hypo softens the cement so



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that the water can wash it away. In the absence of a proper drain waste chemicals should be carried away in a bucket. The chemicals do not seem to harm plants.

3. To develop film or small prints three trays or dishes that hold at least 8 ounces of solution are needed. Metal containers other than stainless steel should not be used unless they are enamelled. Trays of rubber, plastic, china, etc., are all right. The first tray is for developer, the second for rinse, and the third for fixer. Film clips or spring clothes pins are used to hang film but it is possible to get along without them. A towel or two is indispensable.

4. Safe-lights can be made by dye coating the chimney of a kerosene lamp. The small wall type lamp with the 3/16th inch round wick common in all bazaars is good. Several chimneys can be coated different colours for various needs. The air vents should be shielded in such a way that the stray light from them will be kept from sensitized materials and not stop the flow of air. The light going straight up will do no damage if the light is set on a stand a few feet higher than the working area. A lantern is better yet but still needs to be shielded on one side.

The dye coating formula follows:

Dye Coating for Glass

SOLUTION A

Water	10 ozs.
Granulated cooking gelatin ...	1 oz. (10 level tea-spoonsful).

Allow to soak for fifteen minutes. In the meantime prepare B & C.

SOLUTION B

Water	1 oz.
Potassium chrome alum	20 grains (or ¼ teaspoonful crushed).

SOLUTION C

Water	5 ozs.
Yellow butter colouring (dry)	3 level teaspoonsful.

Heat A stirring until the gelatin is dissolved and bring to near boiling. Do not boil. Remove A from fire and add B and then C while stirring. When the solution cools strain through several thicknesses of cloth. Then the small chimneys can be immersed in it. For larger ones the solution can be poured into a shallow tray or pan and the chimneys revolved in it. Drain well and set on some old paper to dry. Two small parallel sticks placed under the chimney will allow air to pass easily. A short candle placed inside hastens the drying. Six coatings should be applied. The solution will keep for several days and should testings show that the light is too bright it may be given additional coats. If the gelatin sets in cool weather it can be re-heated. By adding one teaspoonful of liquid red food colouring to the yellow coating an orange safe-light for enlarging papers can be made. By adding the full ounce of red food colouring a red safe-light for orthochromatic film can be made.

5. To test these, or any safe-light, put the light in the place where it is to be used. With the flame low place a piece of photographic paper on the work table face up and cover part of it with an opaque object. Expose it for two minutes, then submerge it in the developer for another two minutes.

Fix it for one minute before examining it in a bright light. If the paper is white the light is safe. If it is not the light is too bright. Turn the flame lower and test again. If it is still too bright move the light farther away. If these fail several more coats of the dye solution are needed. To test for ortho film simply cut a piece from the end of a film and develop it. Electric bulbs may also be treated in this manner. They will need twice as many coats. Off the record this same system may be applied to Christmas tree lights and other decorations. Should the coating become sticky it can be hardened by immersing it in tropical hardener (19).

6. A large drum, with a good-sized faucet near the bottom, mounted five or six feet above the floor will give enough pressure for running water. In hot weather it is helpful to have it inside but during the monsoon it adds to the dampness. It's your baby to nurse your way. Rain-water gathered from the roof after the monsoon is under way can be stored in earthen water pots and used as distilled water. New ones should be varnished or painted to seal them and may be covered with plastic refrigerator dish caps. Even when distilled water is not specified it is good practice to use it for stock solutions.

7. During the long monsoon photographic materials are easily damaged by fungus, mold, or the absorption of moisture from the air.

(See Chapter XXX, "Problems of Photography in the Tropics".)

8.

(*a*) All formulas should be mixed in the order in which the chemicals are given.

(*b*) Chemical crystals such as potassium, chrome, alum etc. take a long time to dissolve. When powdered they dissolve quickly. Crush them in the bottom of a cup with a small tough bottle about 1″ in diameter. The bottle should be rested on the chemical then slowly turned with just enough pressure to crumble the crystals.

(*c*) Measuring the proper amounts of chemicals is not too hard without the use of scales if the right proportions are known. The household measuring cup that the cook is supposed to use will do for fluids. For strong acids use glass. For very small amounts a medicine dropper can be used. When all of the air is squeezed out of the rubber bulb the medicine dropper will fill up about half way. This is very close to ¼ dram and accurate enough for the formulae used here. 32 of these equal 1 oz. Household measurements are given in parentheses.

(*d*) A level teaspoonful means one that is packed down and levelled with a knife. To get ½ teaspoonful, fill the spoon and put the knife blade down the center lengthwise and push off one-half. To get ¼ teaspoonful settle the half in the bowl of the spoon and divide it the same way. Rounded teaspoons are specified for chemicals that are in fairly large crystals and impossible to pack down. Chemicals that are lumpy should be powdered as explained above.

(*e*) Some chemicals contain dirt and grit that are not kind to the tender photographic emulsions. It is wise to filter all chemical formulae before using them. If you do not have regular filtering papers such as your chemist or druggist uses you can get by with a little cotton in the bottom of the funnel.

The cotton is not as efficient as the filtering paper but is good enough for most formulae.

(*f*) When adding replenisher (12) put it in the bottle while the developer is still in the tray. Pour in the used developer until the bottle is filled to the quart level and throw what is left away. If you have just developed 3 rolls in D–23 put 2¼ ozs. of replenisher in the bottle then pour back the used solution. This keeps the developing time constant.

9. Good negatives make darkroom work a pleasure. The thing that puts this pleasure into the negative is good contrast. We contrast such things as love and hate, or black and white in order to observe their differences. The description of a common scene will illustrate photographic contrast. Suppose we have photographed a man in a black coat, wearing a maroon tie, and reading a book. Everything we might mention in the scene is of a different shade or tone regardless of colour. There is a contrast in the flesh tones of the face and the deep colour of the tie, just as in the black of the coat and the white of the pages but the difference is not so great. If in the finished picture the tie and the face appear to be of the same shade of gray the contrast is very poor. If they are represented by light and deep tones of gray the contrast is good and the other tones of the picture will automatically fall in their right places. The white pages and black coat will appear to be as different as they were in the original scene. When all the shades of tone in the scene are accurately represented in the picture we have good contrast. The negative must have fair contrast to make a good photograph. Unless we use artificial lighting we cannot control the contrast of the scene. By proper development of the negative we can make the contrast of the scene fit the paper. Exceptions are rare. Long development time gives greater contrast; short development time gives lesser contrast. In a contrasty scene, such as a village street on a bright day when shadows cover part of the roadway, a normal exposure will not produce a print that looks like the scene. If the shadows print well the sunny part will print almost white and vice versa. If such a scene is given 2 to 4 times normal exposure and developed 20 to 40 per cent less than normal time a surprisingly good print will result. On the other hand if the day is dull give 50 to 100 per cent less exposure and develop the film 20 to 40 per cent longer than normal.

10. For those who wish to mix their own developers the following simple formulae are highly recommended:

KODAK D—23

A semi-fine grain developer for all normal work.

Water, about 125°F. ...	24 ozs.
Elon. ...	¼ oz. (2½ teaspoonsful, level).
Sodium sulfite	3 ozs. 145 grs. (18¾ Tsp. level)
Cold water to make	32 ozs.

For tray development (13) average time for most roll film is 15 minutes at 68°F., 8 minutes at 75°F., 6 minutes at 80°F.

Develop 35 mm. Super XX and other high speed 35 mm. film 20% longer.

After the first roll develop each roll 10% longer than the previous one. One quart will develop about 8 rolls of film size 120 or its equivalent.

Up to 25 rolls may be developed if 3/4th of an ounce of Replenisher DK–25R is added for each roll developed. The developing time should NOT be increased (8f).

11. KODAK D—25

Fine grain developer for film that may be used up to 90°F.

Water, about 125°F.	24 ozs.
Elon	¼ oz. (2½ teaspoonsful, level)
Sodium sulfite (dessicate)	3 ozs. 125 grs. (18¾ teaspoonsful, level)
Sodium bisulfite	½ oz —(4 teaspoonsful, level).
Cold water to make	32 ozs.

For tray development (13) average time for most rolls at 68°F. is 29 minutes. The recommended developing temperature is 77°F. for 16 minutes. At 85°F. develop 8 minutes, at 90°F. develop 5¼ minutes. For tanks develop for 35 minutes at 68°F., at 77°F. 18 minutes, at 85°F. 10 minutes, at 90°F. 8 minutes.

Develop 35 mm. Super XX and other 35 mm. high speed film 20% longer.

After the first roll add 15% to the developing time of each consecutive film. About 6 to 8 film per quart can be developed.

Up to 25 rolls can be developed in a quart with the use of DK20R Replenish at the rate of 1¼ oz. for the first 12 rolls then at the rate of ¾ oz. for the rest. Do not increase developing time. (8f).

12. Replenisher for use with D23 and D25.

KODAK DK 25—R

Water, about 125°F.	24 ozs.
Elon ...	145 grs. (3 teaspoonsful, level).
Sodium sulfite ...	3 ozs. 145 grs. (18¾ teaspoonsful, level).
Kodalk ...	290 grs. (4¼ teaspoonsful, level).
Cold water to make	32 ozs.

Dissolve chemicals in order given and use as directed with each developer.

13. Orthochromatic film such as Verichrome and Plenichrome can be handled in the red safe-light with flame low, but panchromatic film such as Super Pan Press and Super XX are handled in total darkness. As an exposed film is unwrapped the tail end comes first. It is attached to a short piece of black paper that is loose from the wrapper. Remove the piece of paper and allow the film to roll up separately from the wrapper. The front end is attached with tape which should be removed. Hold the detached roll of film between the thumb and one finger of the right hand. With the left hand fingers grip the end of the film and unroll six to eight inches of it. Submerge the end few inches into the developer and allow it to slowly curl and begin to reroll. Keep the submerged part under the surface of the developer. With the right hand feed the unrolled portion of the film into the developer, and allow it to roll up between the thumb and one finger of the left hand. When the right hand is about an inch from the solution grip the film that is between the thumb and finger of the left hand and unroll another section of the dry film. Repeat this complicated-sounding but easy process until all the film has been fed into the solution. With the fingers of both hands in the solution, keeping the film under, reroll the film into the right hand. Keep rerolling the film from one hand to the other until it is fully developed.

After the knack is acquired it is possible to develop as many as four rolls at the same time. The first roll is fed into the developer and rerolled once, then put it in one corner of the tray. The second roll is treated the same way and put into another corner. After all the rolls have been put into separate corners reroll the first one, and after that the second one. Keep going from one roll to the other until the developing time is up. Then remove the first roll of film and unroll it into the hardener short stop. Rinse the fingers quickly and transfer the second film in like manner. And so on through the fixer and wash. 35 mm. film can be unrolled right out of the cassette. If the time of development is short only one or two rolls of film should be attempted at one time.

14. Film developer stains are easily removed from the finger with the following formula:

Developer Stain Remover

Stock Solution A.

Water	32 ozs.
Potassium Permanganate	⅛ oz. (2½ teaspoonsful).

After washing the hands well in soap and water immerse the fingers in Stock Solution A and rub the stained parts for about a minute. Rinse the hands thoroughly. Then bleach in Stock Solution B.

Stock Solution B.

Water ...	32 ozs.
Sodium bisulfite	1 oz. (teaspoonsful).

15. Panchromatic and orthochromatic films may be developed by inspection if properly desensitized. Most desensitizers must be used as a separate bath before development but pinskryptol green (made by Ansco, Binghamton, N.Y., U.S.A.) can be added to the film developers in 10 and 11.

Water, warm	1 oz.
Pinskryptol green	1 gr.

Add this solution to one quart of developer. Immerse the film in the developer in total darkness. After four minutes the bromide safe-light may be used but the film should not be removed from the developer and inspected until half the developing time has elapsed. Then it should be held one foot from the safe-light for two seconds. At three feet from the light the film may be inspected as long as ten seconds. Care must be taken that the film is not held above the top of the chimney lest raw light fog it (blacken it). Film should not be kept out of the developer any longer than is absolutely necessary to see what is happening.

16. When developing a film by inspection the image appears to be developed long before it really is. View the image through the back of the film and it will not be so deceptive. When the lightest areas (the shadows) begin to show details of the picture the film is just about ready to be taken out. At first development by inspection is full of uncertainties and it is better to follow directions for time and temperature as you watch what happens.

17. A film-viewing frame aids greatly when developing by inspection.

It will minimize danger of fog when using the open chimney safe-lights and make inspection easier by allowing the light to pass through the film and preventing it from shining into the eyes. In a sufficiently large piece of cardboard, say 10 x 12 inches, cut a hole the shape of the negative and about 20% smaller. A thin sheet of white airmail paper over the hole gives a ground glass effect. Prop this up vertically a foot in front of the safe-light. Hold the film a few inches away from the frame to inspect it.

18. The Acid Short Stop bath arrests the development, and rinses the developer from the film. If acetic acid is not available water helps but does a poor job.

ACID SHORT STOP

Water	32 ozs.
Acetic Acid (glacial) ...	½ oz.

Rinse film for 1 minute before transferring it to the fixing bath.

19. In warm weather hardening the film is important to prevent reticulation. The following formula is used in place of the Acid Short Stop.

Tropical Hardening Bath for use up to 90°F

KODAK SB—4

Water	32 ozs.
Potassium chrome alum	1 oz. (5 teaspoonsful, rounded)
Sodium sulphate	2 ozs. (13 teaspoonsful, level)

Harden the film for 3 minutes. If a tank is used agitate it for a few seconds or streaks may occur. The solution will not keep long after it has been used once and should be discarded after it has lost its purple colour. If sodium sulphate is not available it may be omitted, or ½ oz. glacial acetic acid may be used in its place.

20. It is important that film be properly fixed to insure permanency. Fixing for too short a time, or in old solution will lead to fading of the image in time to come, and may cause stains. The easiest way to dissolve hypo is to put it in a bag and suspend it just inside the top of a graduate or other container. Pour hot water over it, or just suspend it in cold water, which takes longer. The cloth used should be such that it will retain the dirt that is often found in hypo.

21. FILM FIXING SOLUTION

Water ...	32 ozs.
Hypo crystals	8 ozs. (one cupful)

Plain hypo fixes as well as any other formula but has no hardening action and can be used only for one day. After it has once been used it does not keep. It may be used for negatives or prints but in hot weather it should not be used. Fix film twice as long as it takes to clear.

22. ACID FIXING SOLUTION

Water ...	32 ozs.
Hypo	8 ozs. (1 cupful)
Sodium bisulfite	¾ oz. (6 teaspoonsful, level).

Acid hypo may be used over and over again and keeps well. It is excellent for all around use and has some hardening action. Fix film twice as long

as it takes to clear. If water above 80° must be used for washing the Tropical Hardening Bath (19) must be used with it. If it takes more than 5 minutes for the creamy emulsion to clear from the film it should be discarded. See Hypo test 24.

23. **Acid Hardener Fixing Solution**

KODAK F—5

Water ...	24 ozs.
Hypo	8 ozs. (1 cupful)
Sodium sulfite (dessicated)	½ oz. (3 teaspoonsful, level).
Acetic acid 28 %	1½ fl. ozs.
Boric acid crystals	¼ oz. (1½ teaspoonsful, level).
Potassium alum	½ oz. (3¼ teaspoonsful, level).
Cold water to make	32 ozs.

To make 28% acetic acid add 3 parts acetic acid to 8 parts water. Acid hardener fixing bath is one of the finest fixers for hardening film and papers. Fix film twice as long as it takes to clear. Used in connection with the Tropical Hardener it gives film a very tough surface. It keeps well. See hypo test 24. When bubbles begin to remain on the surface it is a sign of exhaustion.

24. A hypo test for testing the condition of the fixing bath is merely a 10% solution of Potassium iodide. With a medicine dropper put one drop into the hypo.· If it remains clear the hypo is still good. If the drop gradually or quickly becomes cloudy the bath is exhausted and should be thrown out.

25. Film must be washed thoroughly. Hypo left in it will bleach the image in time. In fast-flowing water that completely changes in 1 minute or less the film requires at least 12 minutes washing. If it takes longer than this for the water to change the time should be lengthened proportionately. Fine grain negatives should be washed at least one hour. When water is scarce film can be washed in a tray, the water being changed at least 12 times at three minute intervals, and the film being kept in motion as described in 13. Prolonged washing will remove all hypo from the film. The washing test (55) may be used. Temperature does not effect the washing time of film. During washing should the film be touched with hypo contaminated hands, or other film added for washing the washing must begin anew.

26. Before drying film it is good practice to rinse them in a tray of clean water with a few drops of wetting agent in it to prevent water marks. In the absence of proper clips film may be hung to dry on beheaded nails, or old phonograph needles, in a doorway or window. Care should be taken to see that they do not touch anything, or swing together. Should several get stuck together they can usually be soaked well and carefully pulled apart. Film and negatives should always be handled by the edges to prevent damage.

27. Photographic prints the same size as the negative are made by pressing the paper in contact with the negative and exposing it to light. In place of the regular printing frame a sturdy picture frame with a stiff back may be used though it is not so convenient. Perfect contact is important for wherever the paper does not touch the negative that section will be blurred. The

emulsion side (dull) of the negative is placed next to the coated side of the photographic paper. When contact in the frame is sure expose it to some constant light source such as an Aladdin lamp, Petromax, or lantern. Sunlight is often unreliable since it may vary considerably with the weather. If a lamp is on a lampstand, place it 2 or 3 feet from the door and hold the printing frame next to the door jamb with the negative facing the light. This practice will ensure uniform duplicate exposures. By using an enlarging paper and the orange safe-light (4) exposures can be made by simply lifting the chimney from the lamp and replacing it. When making exposures in this manner all photographic papers should be put away to prevent fogging. See 39 for test strips.

28. Printing boxes can be made for use inside the darkroom. The box should be deep enough so that the light will spread to an even intensity when it strikes the printing frame in the top. If the light is too close the center of the print will be light and the edges darker. An automobile headlight bulb may be used with a storage battery, or a number of 3 volt flashlight bulbs may be arranged in a rectangular square and powered by large dry cells. A switch should be placed on the side of the box so it can be easily used for making exposures.

29. Printing masks can be made by cutting a hole the size and shape of the image in a piece of black paper or red celluloid which should be a little larger than the negative. Strips of thin deep red or black scotch tape may be stuck on the inside of the printing frame glass. A number of ready-made cheap masks are on the market.

30. Enlargements are made by projecting the image of the negative through the lens of an enlarger which is really a camera adapted to work backwards, and works in a similar way to the slide projector. In fact some have used their projectors for enlargers, but it is of little use except for 35 mm. film. Since the light is so strong contact printing paper must be used. Shield the projector to prevent stray light from striking the sensitized paper. Unless one is a skilled craftsman it is better to buy an enlarger, for most home-made ones are sources of more trouble than pictures. An enlarger can be rigged up to run from a 6 volt storage battery by using an automobile headlight bulb in a midget flash bulb adapter. The exposures will be longer by several times than when using house current. A 21 candle power bulb almost equals 32 watts, and will burn for over 15 hours continuously on a normal battery in good condition. The car can be parked outside the darkroom and wires run from it to the enlarger.

31. If no easel is available masks can be made from black paper or deep red Celluloid sheeting. A strip of scotch tape will make a convenient hinge which can be stuck to the baseboard wherever it is needed. For large prints an easel is almost indispensable.

32. The negative is put in the film carrier of the enlarger emulsion (dull) side down, and the paper is placed on the easel with the coated side up.

33. Focusing is done on a sheet of heavy white paper or thin cardboard. Keep the lens wide open. At first focusing will seem awkward, and all

sorts of aids are sought. A reading glass is a help. A narrow strip of blackened thin metal one-half the diameter of the diaphragm opening clipped to the lens barrel in such a way that it blocks the passage of light through the center half of the lens will throw a double image if the negative is slightly out of focus. When the lens is adjusted to give a single image the negative is in focus. A strip of black paper attached with scotch tape will serve the same as the metal strip. A fogged piece of film with lines scratched in it with a needle or razor blade can be used for focussing, after which the negative may be replaced. By watching for sharp lines in the negative such as a dress design or trees against a clear sky, or noting when the dark areas are darkest, and the light areas lightest, focusing can be done quickly. If the enlarger light is dim, it is better to use a substitute for the negative.

34. Calibrating your enlarger will make it easier to duplicate a print at a later time, and also aid in focusing. Once you have become accustomed to this system you will wonder how you ever got along without it. There are many kinds of enlargers and this system can be adapted to almost any of them. The projection head usually slides up and down a vertical post, and is counter-balanced by a weight inside the post, or a roller spring. On the tape connecting the counter balance with the enlarger head arm the calibrations are marked with a grease pencil. Proceed as follows:

(1) On a very dark rejected negative or piece of fogged film make two small marks with a razor blade or fine needle exactly one inch apart. On large negatives two or three inches may be used.

(2) Place this in the film carrier emulsion side down.

(3) With the lens wide open adjust the enlarger until an image of the two marks are the exact size of the marks on the negative.

(4) Just even with the top of the post draw a line straight across the tape. Above this mark the figure 1.

(5) Near the lens, on the rod on which the focusing nob runs up and down, make another mark at the top of the fixture holding the nob.

(6) Readjust the enlarger until the image is exactly twice the size of the marks on the negative. Make two more marks as explained in points 4 and 5. Mark the figure 2 above the second line on the tape.

The first lines mark the positions at which a projection print the same size as the negative can be made. The second lines indicate the positions where an enlargement twice the dimensions of the negative can be made. Continue readjusting the enlarger and making new marks, each time multiplying the size of the image by 3, 4, 5, etc., until the enlarger head is at the top of the post. Each number indicates where to set the enlarger for that size enlargement. These numbers tell the number of dimensions (usually called diameters) your picture will be enlarged, and not the number of times. To find the number of times multiply the number by itself. A four diameter enlargement is 16 times the size of the negative. It is also advisable to mark the half diameters such as 1½, 2½, etc., on the tape though it is not quite possible to do it on the rod of the focusing nob.

35. *Using the calibrations.* Almost every negative should enlarge to a standard size print at one of the diameters or ½ diameters marked on the counter balance tape. Suppose a 120 size negative, which is 2½ inches wide, is to be enlarged to 8 by 10 inches. The width of the negative will enlarge to 8 inches at the 3½ diameter mark but the length will enlarge to more than eleven inches. This means that part of the length will have to be left off, and in a great many cases this is desirable. If the full length is required the print will have to be about 7 inches wide. This happens often when group pictures are made and is about the only common exception. If only a part of the negative is useful use a larger diameter. After the print is finished note the diameter it was enlarged on your data sheet (68). With a little practice it becomes almost second nature to look at a negative and decide how many diameters it will take to make an enlargement of a certain size.

36. Photographic Papers

The large variety of photographic papers available for almost any need can be boiled down to 3 main types—chlorides, chlorobromides, and bromides. The chloride is also known as contact paper, the bromide as fast enlarging paper, and the chlorobromide as slow enlarging or fast contact paper. Any of them may be used for either purposes. The bromide papers are usually about 300 times as fast as the chloride and chlorobromide varies greatly between these extremes. All these emulsions are coated on a great variety of plain and fancy surfaces. The dull surfaces give the least detail and are used when the masses or shapes of a picture are more important than minute detail. The glossy surface are used when great detail is important, and for small prints. Between these extremes are many beautiful and pleasing surfaces that are more desirable for enlargements and for colouring. For contact papers use the yellow safe-light, for all others the orange (4).

37. No matter how you try you will never have all perfect negatives. To get over this hurdle manufacturers make all types of emulsions in a number of grades or contrasts. Chlorides come in 5 or 6 contrasts; the bromides, and some of the chlorobromides come in no more than four. A number of professional papers come in only the normal grade also called ||2 contrast. This grade is used with negatives of good contrast as described in 9. Flat negatives have too little contrast and sometimes the image is very faint. For these negatives contrasts of number 3, 4, or 5 will usually give acceptable and often very good results. Harsh negatives have too much contrast and are usually extra dark. Contrasts 1 or 0 are used for these.

38. The following experiment should teach more about contrast in one evening than pages of words and picture. Choose what you think is good negative, preferably of a person but avoid a subject in white or very light colours. To examine negatives put a sufficiently large piece of white paper on a table in front of a window or lamp. Hold the negative by the EDGE and look through it toward the white paper which reflects an even soft light. Make the best print you can on number two paper, especially watching

for detail in the face and clothes. Then make four more but on contrasts 0, 1, 3, and 4. If you have chosen a good negative the number 2 print will be good. The prints on ‡0, and ‡1 will lack contrast and may appear muddy; those on ‡3, and ‡4 will have too much contrast and lack detail in both the light and dark areas. Using the same negative the exposure time on the higher contrast papers should be increased 20% to 25% for each grade, decreased the same amount for the lower grades of paper. Now take a harsh negative, and then a flat one and make the same series of prints with them. You will notice the difference before the job is finished but go through with it and you will have a very helpful visual aid.

39. Exposure or printing time for contact prints is determined by making a series of test strips. Cut a piece of photographic paper the size of the negative into four strips. Place one strip across the important part of the negative and expose as in making a print. (27). Give it ten seconds exposure and develop for one minute. If it is too light make another test giving twice the exposure time. If the image is very faint or there is none at all give about 4 times the exposure. If it is too dark halve the exposure time, if it is black try 1/5th the time. If it takes longer than ten seconds for normal exposures, or less than five, the light should be adjusted to a proper strength.

40. Exposure test strips for projection printing can be made completely on one sheet of paper, the size of the print, and developed at the same time. After the negative is focused and the picture properly composed, turn off the light and place the paper in the easel. Then proceed as follows using a timer to count the seconds. The loud ticks of a clock may be counted.

(1) Expose the whole sheet for 5 seconds.
(2) Cover 1/5th of the paper and give the remaining 4/5th an additional 5 seconds.
(3) Cover another 1/5th and give another 10 seconds.
(4) Cover still another 1/5th and give 20 seconds more.
(5) Give the remaining 1/5th 40 seconds more.
(6) Develop the test sheet for 2 minutes.

The total exposure for each strip from lightest to darkest is 5, 10, 20, 40, and 80 seconds. Choose the strip that looks the best and make a test print giving that exposure. Suppose the 20 second exposure was chosen. If it appears too light make another at 30 seconds, or if it is dark try 15 seconds. The in-between exposure sometimes gives the best results. On separate tests it is helpful to jot the exposure time on the back of the paper before developing it. Sometimes fluctuations of the electric current give exposure trouble, though a battery operated enlarger will not have it if the battery is in good condition.

41. A light meter can be rigged up to show current fluctuations. Fit a small low wattage bulb in the bottom of a box. At the other end cut a small hole and put the light meter over it. If the pointer does not rest at the center of the scale, carefully enlarge the hole until it does. It is

important that the meter does not get very warm. The box should be long enough so that the back can have ventilation holes cut into it. By comparing the fluctuations with the exposure dial, and remembering that each stop represents twice as much light as the lower one you can adjust the exposure. When making a number of prints from one negative, adjustments made according to the meter will save much waste and discouragement. After a little practice estimating the adjustments will become easy.

42. For light to appear twice as brilliant to the eye it must actually be ten times stronger. For this reason it is impossible to reliably judge exposures in or out of the darkroom. Rules, charts, or meters are indispensable.

43. Dodging or shading of prints is used to alter tones that are too light or too dark. A surprising number of photographs are improved by merely darkening its edges. To do this use a piece of stiff white cardboard several inches larger than the print. At the end of the overall exposure, while the enlarger light is still on, completely cover the photographic paper with the cardboard. Hold it several inches above the paper. Then draw the board toward you and return it quickly so that the far edge receives a brief exposure, considerably less than 1 second. The second time draw it at an angle so that the right side has a larger area exposed than the left. The third time draw it so the left side gets the extra exposure. In quick succession continue these alternate exposures for the proper time which will vary for different prints. Ten seconds is usually a safe starting point. By turns expose each side of the picture. To darken areas within the print, such as one face that prints to light in relation to others, cut a small hole in a cardboard the same shape of the space to be darkened but a little smaller and allow this part of the negative to print through the hole. Hold the board several inches above the paper and keep it moving slightly, just enough so there will be a blending of the image at the edges. For an opposite effect, when one spot prints too dark, a wad of cotton or piece of cardboard the shape of the spot is attached to stiff wire and held above the dark area. Suppose the total exposure is twenty seconds. After five seconds have elapsed hold the dodger over the area that prints too dark for say ten seconds. Then remove it for the last five seconds. This too should be kept slightly in motion to prevent a sharp outline.

44. Flashing is very similar to dodging but is done with the negative out of the negative holder. It may be done under a weak light on a table, or in the enlarger using the smallest stop opening. A flashing test is made by exposing a piece of paper as in dodging the edges of a picture (43), but the flash exposures should be made more quickly. The first edge should be flashed 4 times, the second 8, the third 16, and the fourth 32 times. Develop the test the same time you intend to develop the print, then choose the density you think will give the results you want. When negatives give a blank white sky, flashing will save the picture. When dodging does no good try flashing.

45. The following formula is widely used and can be made flexible enough to meet many situations:

GENERAL PURPOSE DEVELOPER

Water (125°F) ...	16 ozs.
Elon (Metol)	45 grs. (1 teaspoonful)
Sodium sulphite (dessicated)	1½ ozs. (9 ,,)
Hydroquinone ...	170 grs. (3½ ,,)
Sodium carbonate (dessicated)	2¼ ozs. (21)
Pottasium bromide	28 grs. (¼)
Cold water to make	32 ozs.

For contact prints use one part stock solution and two parts water. Develop 45 seconds to 1 minute. For enlarging papers use the same dilution and develop for 2 minutes, or for less contrast dilute 1 to 4 and develop 2 to 3 minutes. For greater brilliance shorten the exposures slightly and lengthen the development time; for softer tones lengthen the exposure slightly and shorten development. Do not go to extremes for too long development will cause stain and if it is too short it will develop unevenly and give muddy tones. For film dilute 1 to 5 and develop for about 5 minutes.

46. To immerse the print hold it by one corner with the emulsion up, put the opposite corner into the developer and gently but quickly shove it under the solution. A clock should be used for timing. Keep the print under and gently agitate the solution or rock the tray for 1 minute and 45 seconds. Then lift it out by one corner and let it drain for 15 seconds before putting it in the acid short stop (18), where the paper should lose its slippery feeling quickly. It may then be put into the hypo and the bright lights used to inspect it.

47. Sometimes due to unevenness of the lighting on the subject, the negative gives a print that is lighter on one side or in one spot. When the print is about half developed it may be removed from the developer and a little undiluted stock developer can be rubbed on the light area with the thumb or finger. Be careful not to overdo it. It is better to rub it a little and return it to the developer repeating the procedure if necessary.

48. A 10% solution of bromide, when added to the developer in ½ or 1 ounce quantities, allows longer printing time which gives greater contrast. It has a tendency to spoil crisp blacks and is sometimes used when harsh blacks are not wanted. Out-dated papers may often be reclaimed developing them in a developer charged with extra bromide. Longer exposures are needed when using bromide.

49. A solution of sodium carbonate (2 ozs. in 32 ozs. of water) is a counterpart to the bromide. When richer blacks are wanted a few to 6 ounces will do the trick. It also speeds up the developing time and gives greater contrast. When the developer is nearing exhaustion it will give it a new lease on life.

50. The potassium bromide and sodium carbonate solutions can be used nicely together. The bromide may degrade the blacks and the carbonate fog the whites, but together they do a perfect job.

51. Metol may be used to lessen contrast and hydroquinone to increase it. The powders cannot be added to the developer for they will not dissolve and may cause specks of black on the print. For 16 ozs. of working solution dissolve 30 grains of metol in an ounce of hot water (125°F) and pour it in the developer stirring it gently. When hydroquinone is needed use 90 grain in an ounce of water at 125°F.

52. Prints should be rinsed before transferring them to the hypo. The acid rinse for negatives (18) is also used for prints. Its use doubles the life of the hypo, and prints may be left in it until a number have collected which may be fixed and washed together in batches.

53. Any one of the fixing formulas (21 to 23) for negatives will very effectively fix prints. The Acid Fixing Solution is preferred when toning, reducing, intensifying, or doing any other after work on the print. Except for very small batches it is advisable to use two fixing baths. Fresh hypo will fix the first few prints in three minutes or less, but as more prints are added the strength decreases and the true condition of the hypo is never certain. Fix them in the first bath for 5 minutes, rinse quickly in running water, then put them in the second bath for two minutes. If only one bath is used they should be fixed for 10 to 15 minutes. See hypo Test (24). Prints left in the hypo too long will bleach. Prove it yourself this way. Take a second-rate print and let it hang over the edge of the tray, partly in and partly out of the hypo. Let it stand overnight and in the morning you will have another valuable visual aid.

54. Prints are not easily nor thoroughly washed. Washing will only reduce the amount of hypo to a safe minimum, and no amount of care should be considered too great. Wash them in small batches in plenty of running water. Single weight prints require no less than ½ hour, and double weight prints at least 1 hour. Very large prints must be washed for 2 hours. To put them in the water and let them stand will not do the job, they must be frequently agitated. Put all of them in the water face down. After a few minutes they should all be turned face up. If after every few minutes they are "about faced" there will be no doubt about proper agitation. If the batches of prints are large they should be turned constantly. Be careful when turning large prints that the emulsion is not cracked by rough handling. The following system requires less handling of the prints, but much more water. Corks that have been cut in half vertically and bound together with rubber bands make excellent clips that will suspend the prints in deep water. Sometimes rustless clips are needed to weight the bottom edge of the print.

55. This washing test for films and prints may sound like a lot of work but is very easily used once the stock solution is mixed.

Washing Test Solution

KODAK HT—la

Distilled water ...	6 ozs.
Potassium permanganate ...	4 grs. (3 pinches).
Sodium hydroxide (caustic soda)	8 grs. (18 medium size flakes).
Distilled water to make	8 ozs.

Take 8 ozs. of pure water in a plain glass and add ¼ dram (8c) of the test solution. Take a roll of film from the wash water and allow water to drip from it for 30 seconds into the glass. Let it stand for 30 seconds. If the colour changes to orange in this time or sooner hypo is present and it must be washed longer. Much hypo will bleach the colour completely. For paper take an 8 x 10 print or its equivalent in smaller sizes and test in the same way.

56. Proper washing assures that prints will not fade in a lifetime under good conditions, but tropical conditions are not very good. Prints can be made really permanent by sepia toning or treating with hypo eliminator. Many hypo eliminators have been devised but only the following one has received the endorsement of reliable authorities.

KODAK HYPO ELIMINATOR HE-1

Water	16 ozs.
Hydrogen peroxide (3 % solution)	4 ozs.
Ammonia (3 % solution)	3½ ozs.
Water to make	32 ozs.

Wash prints for about 30 minutes at 65 to 70 degrees in running water which flows rapidly enough to replace the water in the vessel completely every five minutes. Then immerse each print about 6 minutes at 68°F in the hypo eliminator solution and finally wash about 10 minutes before drying. At low temperatures increase the washing time. 32 ozs. will treat about twelve 8 x 10 prints or their equivalent. An almost imperceptible yellow tone may be avoided by adding 15 grs. of potassium bromide to each quart of solution. Should a yellow tone appear it can be removed by bathing it in a 1% solution of sodium sulphite for 2 minutes before washing.

57. Drying is easily done on netting or other loose-knitted material stretched over a frame. A good size is 23″ x 25″ outside measurements using strips of wood ¾ inch thick and 2 inches wide. Small blocks about an inch thick at the corners will enable a number of frames to be stacked one above the other and provide good ventilation. Sponge or blot the prints and lay them face down to dry. For occasional work a sheet or a hard-surface towel may be spread over a table and the prints put on it face down. Some prefer to dry large prints on a line suspending them with wooden spring clothes pins.

58. Prints are made glossy by squeegying them on chrome plates, or ferrotype tins (iron japanned sheets). Glossy surfaced papers are made for this purpose since other kinds will not take gloss. They should be fixed in the Acid Hardener Fixing Solution (23). Keep the chrome plates clean by washing them in mild soapy water, and rinsing them in clear water between each batch. Ferrotype tins require a special waxing solution that must be Prints soaked in one of the commercially prepared glazing solutions for a applied after each batch of prints has been dried if sticking is to be avoided. few minutes have an extremely high gloss. After the tins are cleaned and the prints thoroughly washed, place them face down on the glossy surface of the plate. Cover them with a blotter or thin piece of cloth and blot thoroughly rolling the roller over it. Afterwards remove the blotter and squeegee the

prints into perfect contact. Poor contact will leave dull specks or streaks. Set the tins aside to dry. The plates may be leaned against a wall in the sun but the back of the tins should face the sun leaving the prints on the shady side. The chrome plates can be used for forced drying by holding them over glowing coals or a hot lamp. Apply the heat to the dull side of the tins and keep them moving so that all parts of it are brought to an even heat. Prints may be dried in about 10 minutes.

59. Print curl may be greatly minimized by treating them in a solution of water (9 ozs.) and glycerine (1 oz.) for 5 minutes, double weight paper for 10 minutes. It may be used in place of a commercial glazing solution but will not quite equal that gloss. It may be applied to any kind of paper and used with any drying method except forced drying.

60. After all is said and done, and you have exercised more care than you ever dreamed possible, some prints are just too dark or too light. Unless one is extremely light or dark it can be fixed up and it is quite possible that it will be better than the best straight print. Farmer's reducer will fix up the dark ones.

Farmer's Reducer

STOCK SOLUTION A

Water	16 ozs.
Hypo	4 ozs. (½ cupful)

STOCK SOLUTION B

Water ...	8 ozs.
Potassium ferricyanide ...	2 ozs. (6 teaspoonsful, rounded)
Potassium bromide (may be omitted)	1 oz. (4½ teaspoonsful, level)

For use add 3 ozs. of Solution A to 25 ozs. of water, then add 1/8th oz. of solution B (8c). Soak a dry print for at least five minutes in water, then immerse it in the reducer face down and agitate it for 10 seconds by the clock. Do not try to watch the action. Rinse it quickly then inspect it. This process may be repeated as often as needed but if a print is stubborn another 1/8th oz. of B solution may be added. Proceed carefully for once the light areas, or high-lights, are bleached too much there is no remedy. Fix in plain hypo, and no other for 10 minutes, and wash as usual. Many leading photographers give all prints a 10 second dip in Farmer's as a routine matter. It usually adds a little extra sparkle.

61. Local areas may be touched up with Farmer's reducer in the following manner. Place the well-washed print on a smooth, flat surface such as the back of a tray. Sponge off all excess water. Keep a clear glass of water for quick rinsing. Take a piece of cotton and dip it into the solution. Squeeze it almost dry so that none of the reducer will drip from it. Apply it to the area to be reduced with a circular motion. Do not rub hard for only the chemicals do the work. Watch the action closely and just before it is as light as you think it should be rinse it with water. Remember the process can be repeated but if it goes too far nothing will bring back the lost image. After the local area is touched up give it a quick overall dip as outlined above. Fix in plain hypo and wash as usual.

62. Chromium intensifier will fix up the weak prints. The tone may

become slightly warm (brownish) but most folk will not notice it, and it may improve the appearance. Some prints will be better if they are purposely printed light with a view to intensification. Pure water should be used for certain chemicals may cause trouble. Distilled, or rain water (6) is always safe.

Chromium Intensifier

STOCK SOLUTION A

Water	16 ozs.
Potassium Bichromate	1 oz. (3¼ teaspoonsful, level)

STOCK SOLUTION B

Water	16 ozs.
Hydrochloric acid, concentrated ...	1¾ ozs.

For use add to 6 ozs. of water, 1 oz. of solution A, and 1 oz. of solution B. Immerse the well soaked print in the working solution and keep it rocking for at least two minutes, or longer if necessary to bleach the image to a faded brown. For large prints double or triple these amounts. Wash the print well, an hour is not too much, then redevelop in stock solution of the General Purpose Developer (45) for about two minutes. Fixing is not necessary, but a good washing is. If the emulsion feels slippery or soft harden it in Print Hardener (63).

63. Numerous processes that are carried out after the print has been developed and fixed cause the emulsion to soften. Sometimes it may not be noticed until they are put on the glossing tins when they may want to stick. The following hardener is quickly mixed and the washing time is short:

Print Hardener

Water	20 ozs.
Formaldehyde solution	1 oz.

Immerse the print for no longer than 5 minutes and wash for 5 minutes.

64. Sepia toning has always been popular, and what is more it is one of the few processes that make a print absolutely permanent. Drying the print first and soaking it again before bleaching will help prevent uneven results. If the print is not entirely free from hypo it will be reduced.

Sepia Toner

SOLUTION A (BLEACH)

Water	20 ozs.
Potassium ferricyanide	1 oz. (3 teaspoonsful, rounded)
Potassium bromide	1 oz. (4¼ teaspoonsful, level)

Bleach the print in this solution until the deep blacks are barely seen as a faded brown. Rinse well. This solution will keep well in a brown bottle and can be used many times.

SOLUTION B (REDEVELOPER)

Water	5 ozs.
Sodium sulphide (note the "D")	2 ozs. (14 teaspoonsful)

After bleaching and washing use the above redeveloper. Take ½ oz. of solution B to 10 ozs. of water. After immersing the print the image should reappear in a few seconds. The working solution will redevelop many prints but should not be kept for future use.

65. Before bleaching the well soaked print may be put into Solution B (64) for 3 minutes, rinsed and then after bleaching redeveloped in the same solution to get darker tones. Prints that have been reduced in Farmer's (60) have a pleasing reddish brown tone. Darker tones may be made by putting a few drops of ammonia in both solutions A and B. A rich tone is obtained by partly bleaching the print in solution A diluted 1 to 4 until the highlights just begin to disappear. Rinse well and redevelop in solution B. Another method is to bleach the print fully, wash well, then allow it to redevelop very slowly in a weak developer. Take 1 part of the General Purpose Developer (45) to 20 parts of water. When it is redeveloped half way or more, wash and finish redevelopment in Solution B. All these methods give variations of the sepia tone.

66. In place of Solution B (64) the following redeveloper may be used. It is odorless, and will not be dangerous to sensitized materials. It gives still another variation of tone.

Odorless Redeveloper

Thiocarbemide (10% solution)	¼ oz. Use medicine dropper (8c)
Caustic soda (10% solution)	¼ oz.
Water to make	8 ozs.

The 10% solutions keep well in brown bottles.

67. Dust is an ever present menace. In spite of all efforts when the print is done there are often dust spots that show up as white, and other little white spots from various sources. At this stage the only thing to do is to cover them up. Spotting colours are made for this purpose. Water colours can also be used. They are applied with a very fine camel's hair brush (Windsor-Newron's are considered tops). Charge the dampened brush by drawing the tip over the black colour block. If it is too wet the retouched spots will have rings around them. Draw the brush over a blotter until it is just damp enough to leave a smudge and so the bristles hold their point well. Carefully apply it to the white spots. Lighter grays are made by mixing a little white with the black. Sepia prints are retouched with the brown colours. On glossy prints the surface usually repels the retouching. By mixing a few drops of muscilage in a small quantity of water and using this to dissolve the colours there should be no trouble. On rough surface prints the spots may be touched out with Wolff's carbon pencils. HH is the most useful grade, and H and B come next.

68. Negatives are properly kept in separate envelopes. To save envelopes when a number of negatives have been made of one subject they may all be put in the same envelope and interleaved with thin paper. Glassine envelopes are popular and it is supposed that the negative can be seen through it, which is seldom the case. Envelopes of high grade paper are much better for all data about the print can be written on it. It is convenient to have a rubber stamp made as shown. If data on more than one size is to be kept it may be put on a thin piece of paper and put inside the envelope with the negative. Flashing and dodging diagrams can be drawn on the other side of the envelope.

It is good practice to begin numbering the negatives as soon as they are put into envelopes after drying. By jotting the number lightly on the back of each print, just before it is developed, the negative can always be quickly found. 35 mm. negatives keep better and get far less scratches if they are filed in short strips or 4 or 6 negatives each. If they are cut in strips before being rolled up they will remain flat. If they are once rolled up there is no way to keep them from curling. The data sheets can be filed seperately if the negatives are numbered.

69. A loose-leaf notebook can be used for the following negative filing index. Since the index is short enough to fit on one page cross-indexing seemed

No.__________Date__________

Title____________________

Place____________________

Neg. ____________________

Paper____________________

Enl. D______F/—______Size____

Exp.__________L. S.__________

Dodge, T.____L ____R ____B ____

Flash, T.____L ____R ____B ____

P. D.____________________

Reducer __________Time ______

Intensifier ________________

Toner______________Bl______

Remarks ________________

____

____

____

to be of no valve. Each negative is listed under as many classifications as is feasible. Its number follows the title or brief description. The first page carries the full index. On succeeding separate pages the title of each classification or sub-classification is written at the top in the same order as in the index. A person who takes relatively few pictures of plants could put all the sub-titles of Botany on the same page, but would no doubt need a separate one for each sub-title under "people", and perhaps many for the sub-title "family".

File Index

ABSTRACTIONS	
AGRICULTURE	
BOTANICAL	Flowers, Fruits, Plants, Trees, Vegetables.
BUILDINGS	Architecture, Churches, Factories, Historicals, Houses, Interiors, Missions, Monuments, Temples, Tombs, Mosques, Schools.
DOCUMENTARY	
DOCUMENTS AND COPIES	
EQUIPMENT	Machinery, Tools, etc.
FOOD AND DRINK	
INDUSTRIALS	
MISSION WORK	
MISCELLANEOUS	
PATTERN DESIGN	
PEOPLE	Activities, begging, comics, crafts, preaching, recreation, sports, work, worship, Aged, Caricature, Children Costumes, Couples. Groups—family, institutions, mixed. Homelife, Individuals, Informals, Studies, Youth.
PLACE	
RELIGION	Idols, Objects of worship, Worship aids, etc.
SCENES	Clouds and sky, Desert, Marine, Mountain, Rural, Urban, Snow, Village.
SPECIAL OCCASIONS	Announcements, Birthdays, Funerals, Holidays, Weddings.
STILL LIFE	
STUNTS AND TRICKS	
TRANSPORTATION AND TRAVEL	
ZOOLOGICAL	Animals, Birds, Fish, Insects.

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CHAPTER XXX

PROBLEMS OF PHOTOGRAPHY IN THE TROPICS

HENRI R. FERGER[1]

THE photographer who comes to the tropics for the first time meets certain problems in his work which will be entirely new to him. Of these the most important of all and perhaps the most common, especially at certain seasons of the year, is DAMPNESS or humidity. Others are salt air, dust, heat fungus on lenses and the problem of correct exposure.

DAMPNESS

Let us deal with dampness first as this is the basic cause of at least one of the others mentioned above, fungus on lenses. In North India it is the monsoon season with which we are concerned. All of us have had experience with the film in a camera which has been left half exposed out in the open or in an ordinary drawer for several weeks (or less) when the air is reeking with humidity. The film possibly sticks and cannot be further wound. And when it is sent for development it is covered with spots or completely ruined.

It is best, during the period of excessive humidity, so far as possible to avoid photography of all sorts, including the taking of pictures, development of film and printing of pictures. All apparatus (especially lenses), film and paper should be kept in air-tight containers or otherwise protected from the moisture. But one needs to know what precautions to take if one cannot stop work entirely.

AIR-TIGHT BOX

It is necessary to provide first of all a container as air-tight as possible, adequate in size for one's apparatus, film and paper. I have found a tin trunk to be excellent, if the cover fits fairly closely. A larger tin-lined box can be prepared. Of course any film or paper in tropical packing need not be placed in this. It will be well to keep all projection apparatus such as movie or still projectors (at least their lenses) inside the same or a similar box. If this has a stout hasp and lock, so much the better!

DRY RICE

A dehydrating agent is also necessary. There are several such on the market, such as silica gel, which change their colour when they absorb moisture and thus show the need for reheating to expel this. But I have found ordinary bazaar rice just as effective and far cheaper. Dried tea leaves (so I have read) can also be used, and even ordinary brown wrapping paper.

[1] Rev. H. R. Ferger, B.Sc., M.A., Jumna, Allahabad, has been loaned by the Synodical Board of the North India American Presbyterian Mission and the Presbyterian Board of Foreign Missions in the U S.A., to be the Field Director for North India of the Audio-Visual Aid Committee of the National Christian Council. He is a pioneer in visual aids, a noted photographer and skilled cine-photographer.

For a small box, get a pound or so of any cheap variety of rice. Put into a deep pan (degchie) inside an oven or on top of a stove (stirring constantly) till it is thoroughly dried. If it begins to turn slightly brown, no harm is done. Put on the cover and allow it to cool. Fill the rice loosely into one or several small bags and tie shut their mouths. Such dried rice is an excellent dessicating agent, in the same way as our grandmothers used to put a few grains of rice into a salt shaker. Put such bags of rice in the box with the photographic equipment. It has no smell and no harm can come from spilling or the absorption of moisture. The rice must be reheated from time to time during the monsoon, depending how air-tight the box is, and how often it is opened. I have found that about once a month is usually sufficient. The same rice can be used for several years—perhaps indefinitely. One can even learn to tell by the feel of the rice when it has absorbed moisture and needs to be dried out. If in doubt, heat it again!

A camera and films can be taken from such a box for several hours during use and replaced. In travel, one can use a small biscuit tin for a small camera and spare films or put a smaller bag of rice inside the camera case.

EQUIPMENT

Such a box should be used to protect lenses of cameras, projectors, enlargers, opera glasses and the like from fungus growth which is so common in damp, tropical climates. When such an affected lens is held so that light comes through it, and turned backward and forward slightly, one can easily see the fern like growth, either along the edge or (less commonly) in the middle. This is a living, fungus growth, and unless checked promptly, will in time completely ruin the lens. This may be only on the front or the back surface of the lens, or even inside the lens, on one of the inner surfaces. (A good quality lens will have from 2 to 4 components, with 4 to 8 surfaces). How this fungus growth travels, no one knows, but probably by spores through the air.

FUNGUS

This fungus seems to secrete some sort of acid which actually eats the soft glass and in time etches the pattern into the surface. It is clear that this grows and multiplies better in the damp weather—therefore keep at least your lenses in such a drying box as described above for at least that period.

What is to be done for lenses that have such a fungus growth? If caught in time, the growth can be entirely removed with but little permanent damage to the lens with a tiny amount of ethyl alcohol, on a clean handkerchief or lens tissue, then polishing with the same. One eighth of an ounce of ethyl alcohol (not methylated spirits) will last a long time. Avoid too much alcohol, and especially getting it on the edge of the lens where it would dissolve the cement holding the compound lens together. If the growth is on one of the inner surface the lens must be unscrewed into the component parts. This requires careful work and is not a job for an inexperienced person. Special care must be taken to put the parts together again in the same way.

In extreme cases where the growth has gone on for many months and the etching is deep, the lens must be sent to an expert optician for repolishing,

such as Lawrence and Mayo in Bombay. It would be well to ask them for a quotation of the cost before authorising the work to be done.

Never moisten any lens with saliva to clean it. This seems to be a specially favourable medium for the growth of this fungus. It is however quite proper to breath on a lens so that the water vapour condenses on a glass surface., Before rubbing any lens, great care should be taken to dust off all dust or particles of grit on it.

The dry heat of the tropics will not particularly harm photographic apparatus, except older cameras which are made largely of wood. The heat and extreme dryness often cause the wooden joints of such to contract and become loose. Heat is not good for sensitive film and paper, even if tropically packed. It is best to keep this in a refrigerator if possible, both before and especially after exposure. Unexposed film should be taken out 24 hours before use so that it may come to room temperature. Otherwise in a damp climate, moisture will condense on the cold film, thus ruining it.

DARKROOM PROBLEMS

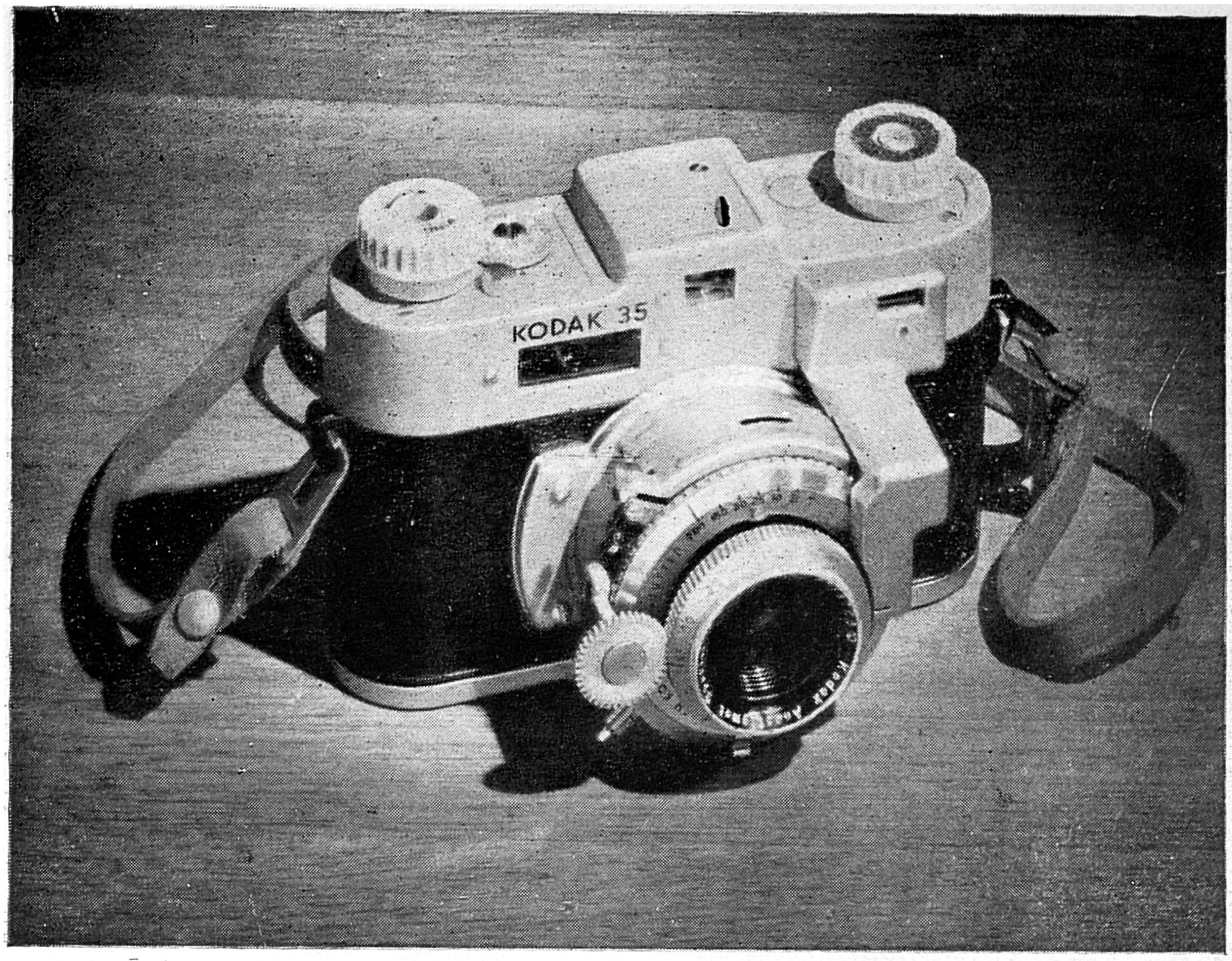
In developing negatives in the hot weather, some sort of temperature control should be used. Temperatures of all solutions should be as near the same as each other as possible. The developing and fixing tray (also the stop bath, if one is used) can be set in a larger tray with water and some lumps of ice in it. (Never put ice into the solutions themselves). Check with a thermometer. Wash water is also cooled with ice. With the use of special formulas, development of film CAN be done at temperatures as high as 110 degrees. See the pamphlet on Tropical Development by Kodak, Ltd. This has much other useful information for the tropics.

If films have been properly fixed and all the hypo washed out, they will keep indefinitely with normal care. However if even a trace of hypo remains, the films will absorb moisture in the monsoon and will soon begin to turn brown and stick together or to the envelopes in which they are stored. In case of trouble of this sort, wash them again (try first with one film to find out if the whole emulsion will dissolve or not). And keep them in a drying box as above.

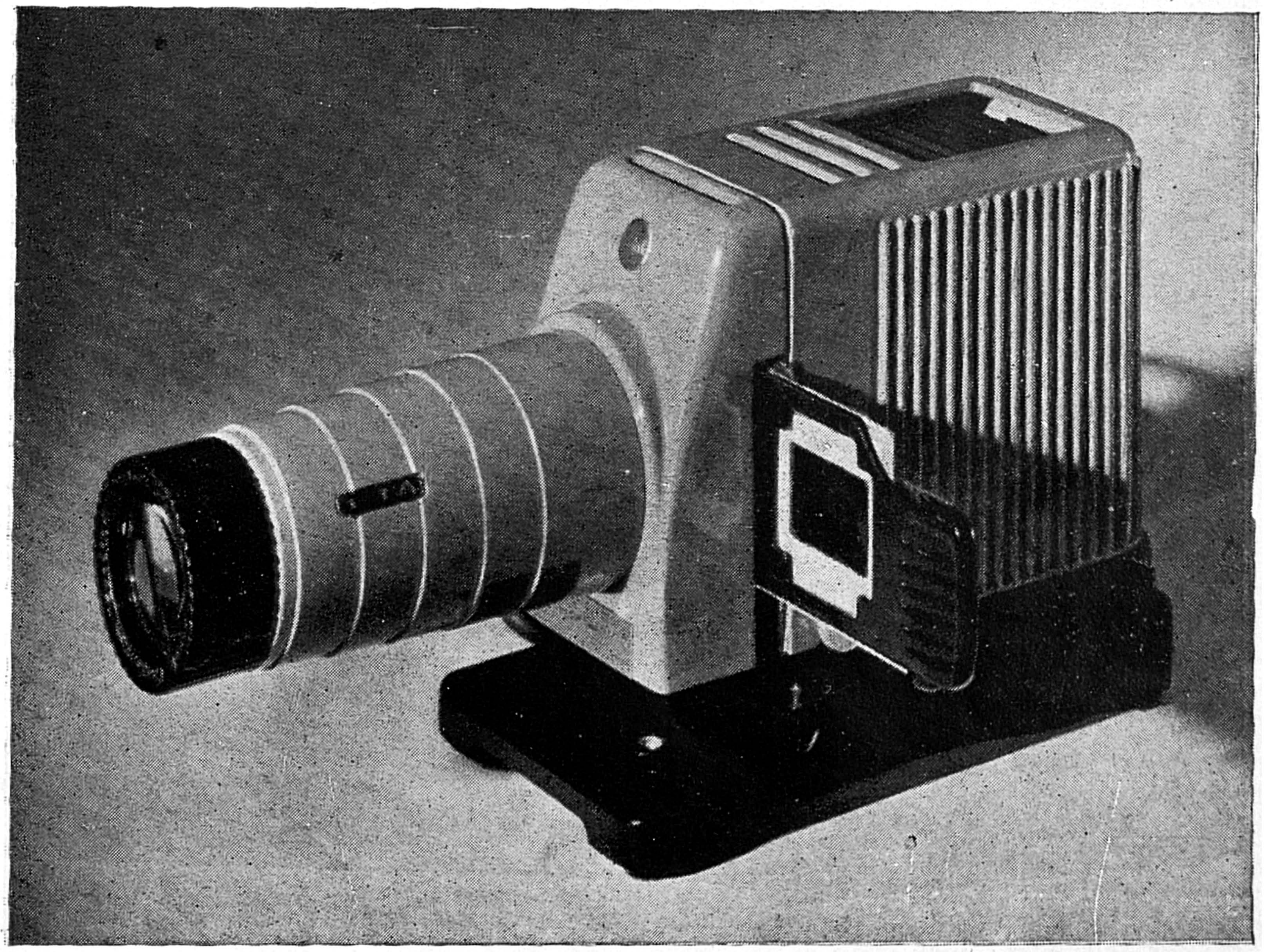
Salt air is the problem of dampness, plus the corrosive action of the salt. All metal parts of a camera etc., need to be protected by wiping a thin layer of good oil or vaseline on to the metal from time to time. Use a good leather dressing on the leather. Even more important of course, on a vessel or close to the ocean is to avoid exposure of apparatus to such a hazard just as much as possible. Prevention is always easier than cure.

DUST

To protect against dust, of course preventive measures so far as possible are the best: avoid exposure so far as possible. Keep all apparatus shut up except at the time of actual use. Dust off the lens of a camera each day with a camel's hair brush. Clean all apparatus, including the back side of the lens, regularly. It is amazing the amount of fine dust that will accumulate inside the bellows of a camera even if not used. And remember the power

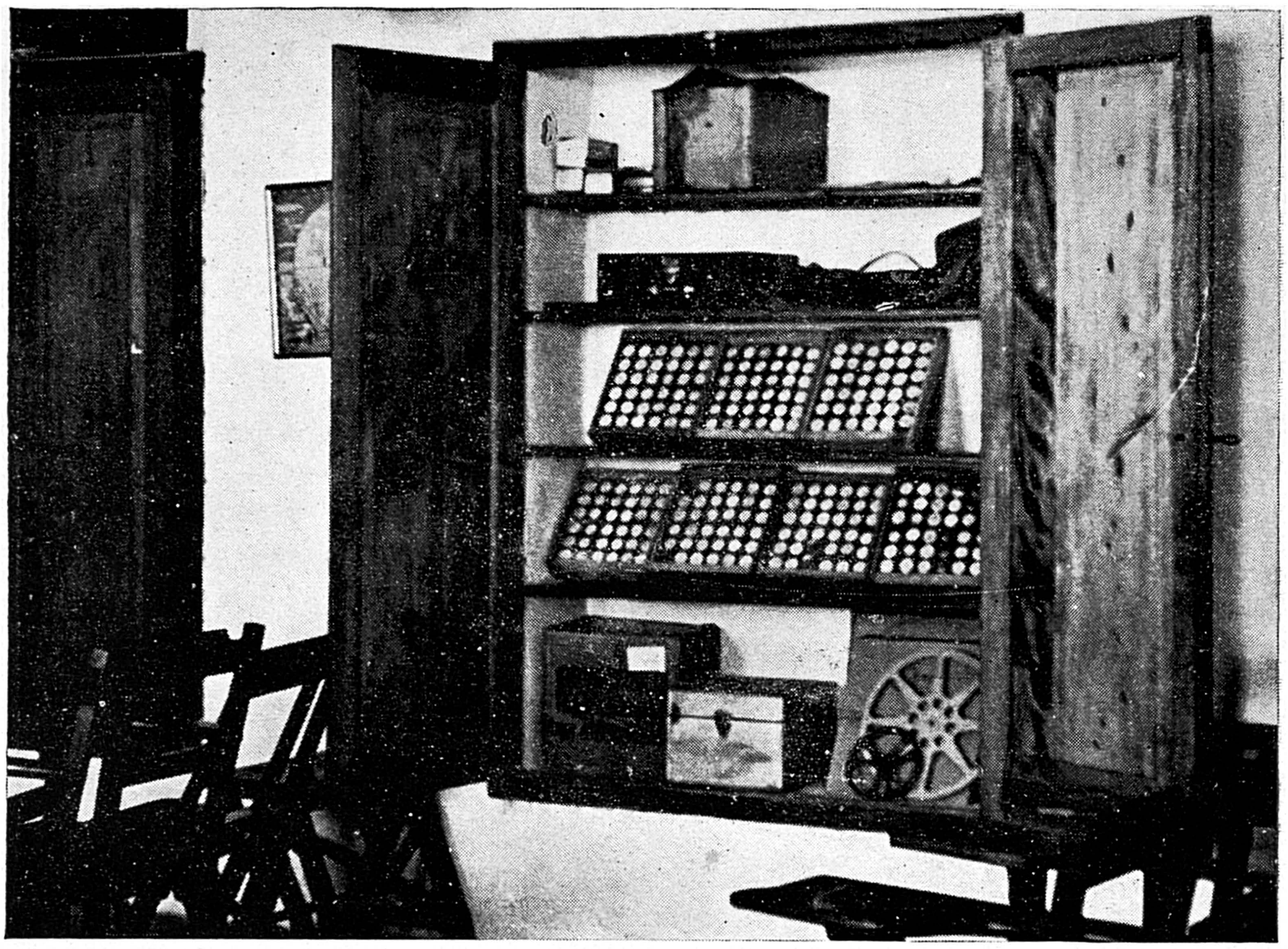


The Kodak. 35 Camera with Rangefinder is a precision miniature in the medium-price range. Used for making 2 ×2 Kodaslides and 35 mm filmstrips

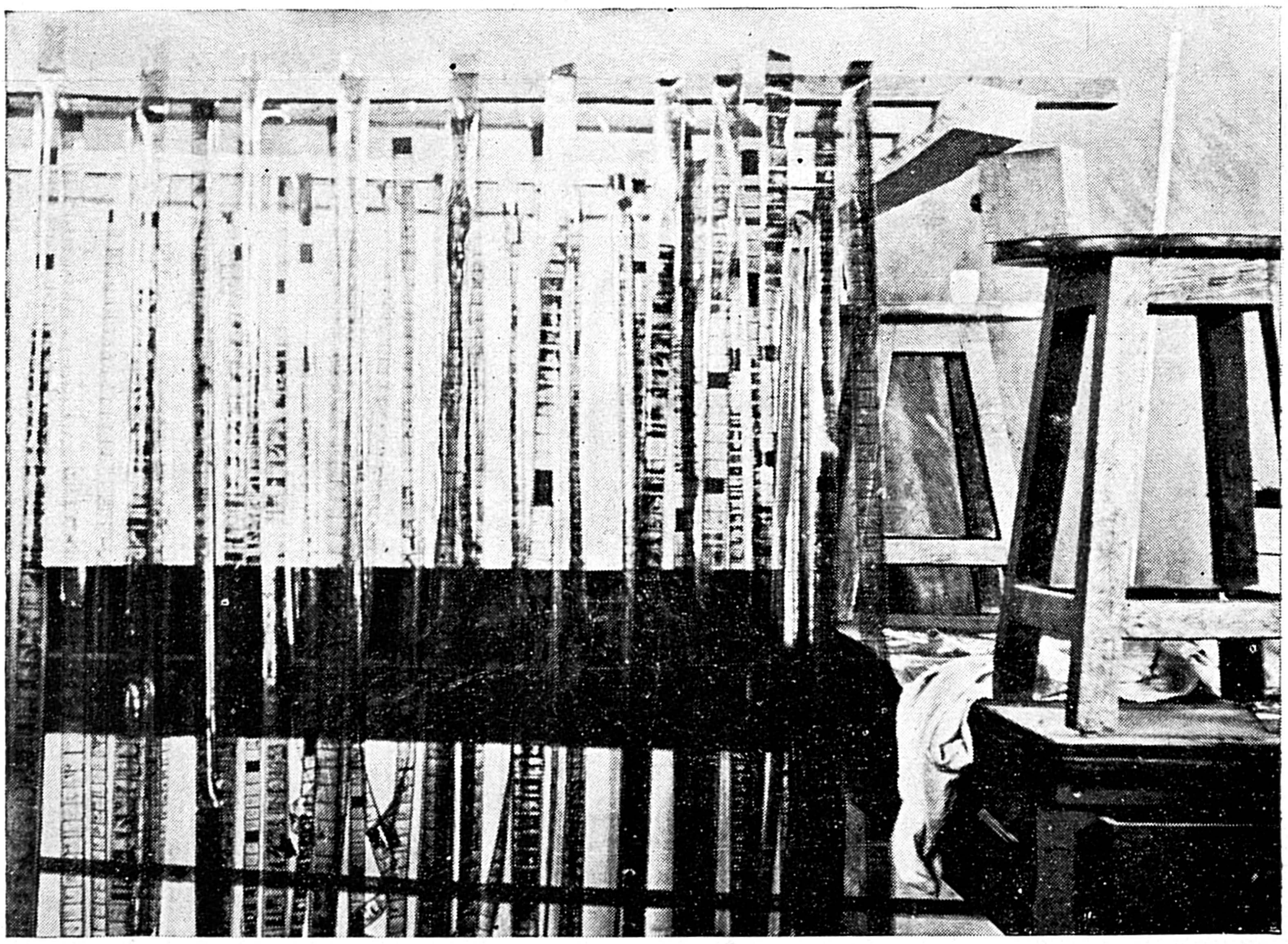


Kodaslide Projector Model 2-A for 2 × 2 inch transparencies

Courtesy: Kodak Limited, Bombay



The Filmstrip Library of Woodstock School, Landour, U.P.



Mr. Ned R. Reed and Dr. Donald F. Ebright Producing the India Village Service Jet-Men Health Filmstrips for the National Christian Council's Audio-Visual Programme

of static electricity to attract dust during the dry season, especially in the winter. Be especially careful not to generate electricity on the surface of a movie film as you load the camera. Even the leader can attract a great amount of dust and this will be caught in the camera gate. Be eternally vigilant for dust.

EXPOSURE PROBLEMS

The correct exposure in the tropics is often very puzzling. The light and the glare often seem much more intense than where you have come from, yet at times more exposure rather than less is necessary. One explanation sometimes given is that there is less diffusion of light so that the shadows are more dense, therefore somewhat greater exposure is required. It is best to constantly keep a record of lighting conditions, time of day, of opening and the like, and learn by experience. I consider an exposure meter almost essential to any photographer, unless he always works only outdoors in direct sunlight near the middle of the day. When clouds obscure the sun, partly or wholly, and under abnormal conditions, the human eye simply cannot correctly estimate the real intensity of the light. And of course you must come to know your own exposure meter, learning just what factor for a given film gives you the best results.

CHAPTER XXXI

HOW TO MAKE 35 MM. FILMSLIDES

W. S. DURHAM[1]

THE purpose of this section is to show how 35 mm. filmslides can be made and coloured inexpensively by anyone prepared to master the modest photographic technique involved, and possessing some colour-sense and a certain amount of dexterity with a brush. Anyone can learn to make an individual slide, but the making of filmstrips is an expert's job. The simple reason for the difference is just this, that any amount of material thrown into the w.p.b. detracts nothing from the value of your one successful slide, whereas any error of exposure or lack of consistency in one frame of a filmstrip remains a permanent blemish upon the whole.

THE CHOICE OF ORIGINALS

The Gospel preacher's first requirement is naturally for slides of Bible scenes. In addition to these, the serious worker will require Scripture texts, diagrams, hymn-slides and progressive object lessons of his own devising. Hymn-slides can usually be made by copying direct from the page of the hymn book, but Bible verses copied direct from the Bible are, for various reasons, rarely satisfactory. To have these and other titles drawn by artists is expensive. The printer can help in many cases without entailing too much expense. The typewriter is also a useful aid, especially if the impression is made through black carbon paper. All hand-titling should be done with Indian ink on a good white card.

An excellent, and inexpensive source of line originals lies ready to the hand in the Christian periodicals, where will be found a great variety of Bible verses and titles, ready printed, only needing to be cut out and filed. Also don't forget that tear-off calendar provide excellently printed Scripture verses in bold types, which, when mounted on stiff paper with plenty of white margin, make excellent originals for copying. As regards general scenes from life it is worth remembering that any good negative, of whatever size, is capable of yielding one or more good 'close up' contact prints on 35 mm. positive film.

For instance you may have a good negative of a peasant ploughing. Suppose it is a quarter-plate effort. It includes a generous foreground of ploughed field, a complete set of bullocks plough and plougher, a copse of trees in the background, a banyan tree and a primitive irrigation system over a well. The size of a 35 mm. "frame" is exactly 36 mm. x 24 mm. Make a mask with a "window" that size and examine the negative through it. As you move the mask over the negative you will notice several pleasing pictures in your "window"! For instance, one position of the mask gives us a close-up

[1] Mr. W. S. Durham is Director of the Gospel Literature Service, Bombay, and has produced several Bible Filmstrips in an Indian setting.

of the peasant, the heads of his bullocks and portion of the yoke. Some of the overhanging leaves of the banyan tree make a nice "frame" and the descending roots identify the tree to any who cannot recognise it by its leaves. When this picture is projected on the screen (especially if suitably coloured) it will produce a gasp from the audience, because it is a life-size "close-up".

MAKING THE NEGATIVE

The transparency (sometimes called a *diapositive*) which either as one frame on a filmstrip, or as a bound-up slide, we project on to the screen, is a positive print on film. In the case of an Ansco-colour or Kodachrome transparency, this positive is made from the negative by a reversal method of development, so that the very piece of film which was exposed in the camera becomes the transparency which we insert in the projector. But for a black and white transparency, which we may decide to colour by hand, there must first be a negative made, and from that negative a positive print on film.

The following suggestions concern primarily negatives made from coloured originals. Any variations from these procedures required in making negatives of black and white titles will be reserved for a paragraph at the end.

THE CAMERA

Any camera may be used, provided it can be fitted with a supplementary lens, and has a back which can be removed to allow for the insertion of a piece of ground glass for focussing. Obviously any camera with a picture size larger than a 35 mm. frame, will waste film, but that is not as important a matter as some folk think. The ideal camera of course is one of the many miniature cameras taking 35 mm. film in cassettes. As most 2 x 2 slide enthusiasts will own this camera in preference to others we shall limit our remarks to it, but with this encouragement to those possessing other cameras, that all the remarks apply equally to other cameras.

THE COPYING STAND

One of the most important matters is the standardising procedure. It is quite possible to make a good negative by pinning the copy on to your typewriter lid, and fixing the camera on a pyramid of books. But it is exceedingly difficult to reproduce these conditions and get the same results again. So some kind of copying stand must be made. For those possessing 35 mm. cameras with removable lens-units, there are ingenious copying devices which permit of 'table top' photography. The great advantage of these precision copying devices is that they permit of focussing each picture and thus permit variation in copy size, but they are relatively expensive. A start can be made with a much simpler home-made apparatus consisting of a base board about 9 inches wide and 3 feet long with a child's blackboard at one and at the other end a wooden block with projections to grip the camera. This block must be so constructed that the camera back will open to permit the inserting of a ground glass screen. The block should move backwards and forwards in a slot in the baseboard.

ILLUMINATION

Illumination is provided with two photo-flood lamps one each side of the copying stand. These can be held in ordinary desk stands, and need not be fixed. Their distances and angles should be the same, and remain constant. Reflectors are necessary not only to beam the light, but to screen the lens.

FOCUS

Makers supply elaborate tables with supplementary lenses, and good mathematicians can in any case work out distances and size of field from formulae found in most photographic books. There is nothing, however, to beat a ground glass screen placed in the position normally occupied by the negative material. The small trouble of getting one cut to size to fit the camera, will be well repaid. Two small strips of scotch tape will keep it in position while, cloth over head, you scrutinize the image. If you are using a camera larger than 35 mm. draw a rectangle 36 mm. x 24 mm. with pencil on the rough side of the glass, and focus in that frame.

FILM

Choose a suitable film and stick to it. Resist the temptation to try experiments with half a dozen types of film. Life is too short! For coloured originals Ilford H.P. 3 or Kodak Super XX should be used. These are fast panchromatic films, which reproduce all colours in tones most suitable for colouring. It is wise to devote one film to test exposures, keeping careful record from over-exposure to under-exposure.

Having determined the optimum exposure for those conditions try to avoid altering any factor in subsequent work. With the ground glass you can easily find the maximum size of your 'field' i.e. the area of the copy-board which at those settings will fill a 35 mm. frame. Have a piece of white board or paper this size on the copyboard, and fasten originals on to this. Originals may be smaller than the card but should not be bigger. Smaller originals will thus have a margin of white around them, which will photograph black on the negative, and print white on the positive. A white margin around the image on the positive is all to the good, as it prevents fouling the image with the final mask or binding tape when the slide is bound up. It is rather disappointing to find the top of the peasant's head chopped off by the binding material!

DEVELOPMENT

Panchromatic film needs a fine grain developer. We recommend Johnson's Fine Grain Developer. The best 35 mm. developing tank in our judgment is the Agfa Rondinax, now available again in India. It costs about Rs. 90, is daylight loading and has a shearing knife for separating the film from the cassette spool. This tank takes only 7 ounces of solution. Most other tanks have to be loaded in the darkroom, and with panchromatic film, in complete darkness.

Stick to the maker's formula, and develop by time and temperature. With this type of film material it is necessary on the plains to use ice.

Break up the ice in a dish, and stand the beakers containing solutions in the ice. Cover with a thick cloth. Return the developer and fixer to these vessels between films. We recommend developing only two films and then discarding the solution. If no replenisher is added. 10% longer developing time will be required by the second film.

The developed film should be washed in running water for half an hour, finally rinsed in a bath of water to which a few drops of *wettol* or similar wetting agent has been added. This prevents drying marks. The film is then removed from the tankspool and hung-up in a clean place to dry.

The only difference of technique required in making negatives of black and white titles etc., concerns the film material, and the developer. *Microneg* is a special film designed for document copying. It has a very fine grain and is colour-sensitive, but we recommend using ordinary positive film, either Nitrate or nonflam: base. The latter is now available, and as it will be required for the positive prints, it will serve this purpose also. This film is very slow, and can be handled in red or orange light. It will require an exposure ten times longer than the H.P. 3 or Super XX, and development in a Contrast developer. We recommend D. 11. In case this may not be available locally, we give here the formula:

Water	8 oz.
Metol ...	7·5 grains
Sod. sulphite	600 „
Hydroquinone	65 „
Sod. carbonate	182 „
Pot. bromide ...	36 „
Add water to make	16 oz.

Dissolve the ingredients in the order given, preferably in distilled water, or failing that, boiled water which has been allowed to cool.

MAKING THE POSITIVE

Under this heading we can metaphorically slap the earnest reader on the back and assure him with utmost confidence that even though he knows nothing about conjugate foci, or what the various ingredients in a developer each accomplish, he can be sure of some pleasant surprises.

First as to equipment. This may be of the simplest and yet produce results equal to anything produced from more expensive apparatus. But don't forget, we are talking about film SLIDES, not film STRIPS. All that is required is a supply of positive film, an ordinary printing frame say for 3¼ x 2¼ size print, a bottle of D. 163 developer, a supply of acid fixing salt, and some small dishes. A 'balloon' of red paper over an ordinary 25-watt electrict bulb at a fair distance from the developing dishes provides all the 'safelight' necessary.

Before commencing to print, however, we must make one small modification to the printing frame, and cut a black paper mask. On the back of the two short sides of the frame mark out the exact width of the 35 mm. positive film (one inch and three-eights). Make sure your markings are parallel to the long sides. Then saw down these markings to the level of the glass and with a sharp chisel take out the waste. Your 35 mm. negative

will lie in this U-shaped trough emulsion side up. A three-inch strip of positive film will automatically be lined up to the edges of the negative, and will of course lie emulsion side down (always emulsion to emulsion).

With the wooden back inserted and the clamps applied it is simplicity itself to expose the film to a convenient light source through the negative so positioned. But if we do so we shall expose also the white margins of the negative, so that our positive picture will appear against a black background, which isn't so good. We therefore need to cut a mask, which will serve another very valuable purpose to be described in a moment.

From a piece of photographic black paper (the kind that your Bromide papers come wrapped in) cut a piece the width of the 35 mm. strips, and as long as the length of your printing frame. Carefully mark in the near center of this a full frame, size 36 mm. x 24 mm. leaving the margins on the long sides exactly as found on a 35 mm. negative. (For those who do not possess a 35 mm. negative this will be three-eighths of an inch). Cut out this frame with a razor blade and metal straight-edge. It must be cut clean and square. This mask will be lined up on the 35 mm. negative by means of the safelight and held in position at one end while the positive strip is lowered into the U-trough at the other end. Changing ends hold the three layers steadily in position while lowering the folded back of the printing frame into the end of the "sandwich" free from your grip. These elementary instructions are added for the sake of those unfamiliar with paper printing.

Before mentioning exposures, let me remind the reader of the remarks made about using negatives other than 35 mm. as sources of contact prints on positive film. The procedure is equally simple. Place the cut out mask on the glass of an ordinary printing frame. Insert the negative emulsion side up and looking through the mask "window" move the negative until the most pleasing or useful picture appears in the frame. Gripping this position tightly, insert and align the positive strip emulsion down and clamp on the pressure board. We recommend the printing of one frame only on each strip of positive film. This allows for individual treatment of each print, and also provides plenty of "trailer" each side of the print for handling in development and fixing. An attempt to "economize" film is really false economy.

The printing frame so loaded should be exposed to a light source about 3 feet away. After a few experiments have been made it should be easy to control the intensity and distance of this light to make a normal exposure of 2 seconds, thus allowing for a 1 second exposure for thin negatives and a 3 seconds exposure for denser negatives. These conditions must, of course, remain constant.

The exposed strip is developed in the dish. It is quite easy to grip three or four strips in bulldog clips and develop them together, but it pays better to develop each one singly, and a very little observation and experiment will enable the operator to judge when development has been carried far enough, when, after a brief rinse in a bowl of clean water the positive print is immersed in the fixing salt for 10 minutes and then washed for half an hour in running water. A final wash in a dish of water to which has been added a few drops of a wetting agent such as *Wettol* will eliminate drying marks. Or the fixed film may be dabbed with a chamois leather.

When the prints are dry, the damaged ends should be trimmed off with the scissors, and the resulting slide-film should be placed in a protective envelope awaiting colouring and binding into a filmslide.

COLOURING THE POSITIVE

First we must say that while it is an art, and one needs to be a bit "arty" to do it well, it is by no means as difficult as it appears. We have seen hand-colouring efforts by talented artists which were nothing more than crude daubs, while on the other hand we have been able to train people who never drew a picture in their lives, to make beautiful coloured positives, by the observing of a few simple principles.

The only equipment really essential consists of a book of Velox transparent colours and a really good sable brush, say No. 1. But some sort of support for the diapositive is helpful, and this can be provided by a piece of ground glass and a bulldog clip. For a horizonal picture use the top edge of the glass, and for a vertical frame use the left hand edge. Work if possible at a "window", in daylight.

A little Wettol or other wetting agent in the mixing water will overcome the repellancy of the film. (10–20 cc. of Wettol to 1 litre of water is recommended).

Just a word about the colours before we begin. Our own practice is to soak a portion of each leaf in a small quantity of water placed in a small dish or pallette. The water rapidly evaporates leaving the powder deposit which can be taken as required on a clean brush and diluted in a little water on saucer. This has the advantage of economy, as a book will last years if used in this way. It also prevents fouling the colours. It will be found that when the blobs of colour on the saucer begin to dry up they can be handled more effectively.

Our method is based upon the three colour-printing processes with which our readers will be familiar. An elementary knowledge of colour synthesis is therefore necessary. This will become clearer as we proceed. For this reason it will be wise to begin on a picture, the coloured original of which is available for constant reference during the colouring.

We begin with yellow, using the light yellow, and as always diluted at first. Our method is to apply yellow to every part of the picture which is to be finally pure yellow, and also to every part which is to be finally a colour containing yellow as a factor, as light and dark browns, greens, oranges, etc., with the one exception of *flesh* which being a special colour is treated separately. In special cases, however, flesh can also be modified by the prior application of yellow. In many pictures it will be found that almost the whole picture takes some yellow. No yellow will be applied where any other pure colour is to come. Thus the blue sky will take no yellow. The density of the colour applied will depend upon the strength of the colour required in the final result. This may sound complicated, but is really not so.

Our second colour is *Flesh.* This colour, in addition to its obvious use for tinting the exposed parts of the human body in the picture, is also very helpful on top of yellow for paths, desert, soil, thatch etc. It may be added to yellow on those portions which are to be ultimately browns.

After flesh take the brilliant red. This is a colour needing more care as it stains deeply, and tends to leave lines. These can be avoided by using a wet pledglet of cotton-wool in the left hand following the brush round and promptly mopping up any excess colour on the film surface, before it has time to form a line. Some red should be applied wherever pure red appears in the picture, and wherever red is a factor of any colour, as in browns, orange, purples, etc.

Our next colour is green, which obviously is applied to all foliage, which may have been already prepared with yellow, and can be further modified with blue if necessary. Green is also useful to deepen shadows, and to create an "old world" effect of indeterminate antiquity.

Then comes blue, a colour which completes much of the work already done. Like red it needs careful handling to avoid patchiness. The secret is to build up from light tints to dark, and have the wet wool hovering around the brush in case of accidents. As most skylines merge into foliage of some kind the blue of the sky will not hurt the landscape. This emphasises one of the great advantages of this method, viz., that hard and fast divisions between the colours are avoided, and a curious effect of depth is produced by the superimposing of one colour over another.

The last operation is to touch up the pure colours, which may have become a little dowdy. At this stage it is also possible to add special efforts with sepia, stone-gray and violet. Delicate touching up should be done with an almost dry brush drawn to a fine point, and if necessary under the magnifying glass.

Anyone who has the patience, and the small measure of manual dexterity necessary to try out the method described above will be gratified at the result. After a little practice and the confidence born of experience, very rich and subtle efforts may be produced which give life and lustre to the picture on the screen.

When the colouring is complete the frame should be hung up to dry without further treatment. If the colouring has been successful the picture deserves preservation in a glass binder.

CHAPTER XXXII

SOURCES OF FILMS FOR RENT IN INDIA

NED R. REED[1]

RULES AND HINTS

CATALOGUES are available free from all these sources.

2. Rating of Usefulness:
   - A: Reliable source; reasonable rates, deposits and rules.
   - B: Occasional value: rates or deposits high.
   - C: Unknown.

3. Postal charges: Registered parcels, charged both ways to user.

4. 16 mm. Silent—
   Standard reel is 400 ft-running time 16 minutes.

   16 mm. Sound—
   Standard reel is 400 ft.—running time 11 minutes.

   May come on larger reels, up to 1,600 ft. Be sure to have one take up reel of this size.

5. The user is responsible for damage to film in his possession.

6. To show SOUND movies, you *must* use a sound projector. To use any other is to invite damage and disaster.

16 MM. SOUND

Sources:

1. Source: Rev. H. R. Ferger, Audio-Visual Aids Committee of the National Christian Council Office of the Field Director for North India P.O. Agricultural Institute, Dist., Allahabad.

   Type: Educatonal, religous, entertainment. 450 reels.

   Rating: A.

   Rules: Standard.

   Rates: (Tentative). Rs. 1-8-0 per reel. Rs. 3 for colour.

[1] Mr. Ned R. Reed, B.Sc., General Secondary Certificate, of the Methodist Church in Southern Asia, is on furlough in the United States of America. He was Head of the Science Department and Audio-Visual Aids of Woodstock School, Landour, Mussoorie, U.P. He is interested in the production of indigenous material.

2. Source: United States Information Service, 54 Queensway, New Delhi, Bombay, or Calcutta. (Only the one in your area will serve you.)

   Type: Informational, educational, entertainment, war; over 100 films.

   Rating: A.

   Rules: Standard.

   Rates: Free. Return postage only. No admission chargeable.

3. Source: British Information Service, Eastern House, Man Singh Road, New Delhi.

   Type: Educational, informational, documentaries. Over 200 reels.

   Rating: A.

   Rules: Standard.

   Rates: Free. Return postage only. No admission chargeable.

4. Source: General Motors, India, Ltd., Post Box 39, Bombay 1.

   Type: Technical, engineering, few general. 45 films.

   Rating: A.

   Rules: Standard.

   Rates: Free. Return postage only.

5. Source: Metro-Goldwyn-Mayer, India, Ltd., Post Box 837, Bombay.

   Type: Current and older major theatre feature films, educational, shorts. Over 100 two-hour features.

   Rating: A.

   Rules: Deposit: Rs. 200 advance rental.

   Rates: Rs. 60 to Rs. 100 per two-hour feature for one show. Special rates apply in each case.

6. Source: R.K.O. Pictures Ltd., Post Box 733, Bombay.

   Type: Major theatre feature films, also 75 Canadian Information films, excellent. Many in colour and quite long.

   Rating: A.

   Rules: Deposit Rs. 500.

   Rates: Similar to Metro-Goldwyn-Mayer, India, Ltd.

7. Source: Central Film Library, Ministry of Education, Government of India, New Delhi.

   Type: Educational Films—good. Over 75 films.

   Rating: A.

Rules: Not over 1 hour shows, for educational, social and civic groups.
Rates: Free. Return postage only.

8. Source: Films Secretary, Office of the High Commissioner for Canada, 4 Aurangzeb Road, P.O. Box 114, New Delhi.
Type: Educational and Informational, over 30 films.
Rating: A.
Rules: Standard.
Rates: Free. Return postage only. No admission chargeable.

9. Source: United Nations, New Delhi Information Centre, Theatre, Communication Building, Queensway, New Delhi.
Type: Educational and Informational, about 15 films.
Rating: A.
Rules: Standard.
Rates: Free. Return postage only. No admission chargeable.

10. Source: Office of the High Commissioner for Australia, Connaught Place, New Delhi.
Type: Informational. 50 films.
Rating: A.
Rules: Standard.
Rates: Free. Return postage only. No admission chargeable.

11. Source: Ama Ltd., Canada Buildings, Hornby Road, Fort, Bombay.
Type: Comic, entertainment, travel. 25 reels.
Rating: B.
Rules: Deposit: Rs. 200 guarantee. Only one reel allowed per time. (*i.e.* Rs. 200 deposit per reel).
Rates: Rs. 7 per reel per day. 50% for succeeding days. No admission chargeable.

12. Source: Monogram Film Exchange, Ltd., Excelsior Theatre, Wallace St., Bombay.
Type: Dramatic, gangster, westerns full-length entertainment films. 30 films.
Rating: A.
Rules: Deposit: Rs. 500 guarantee.
Rates: Rs. 6 per reel.

13. Source: Patel, India, Ltd., 190, Hornby Road, Bombay.
Type: Entertainment, educational. 250 films.
Rating: C.
Rules: Deposit (6 months minimum) Rs. 300 per subject (each reel?).
Rates: Rs. 5 to Rs. 7-8 per reel per show. 25% discount on educational films to schools. Transit time allowed: 6 days only!

14. Source: Radio Corporation of India, Post Box 111, Hazratganj, Lucknow. U.P.
Type: Seems to be same as Patel.
Rating: C.
Rules: Deposit: Rs. 1,000 Guarantee.
Rates: Same as Patel's or more.

15. Source: Ama Ltd., Hornby Road, Bombay.
Type: Feature, including Henry V.
Rating: B.
Rules: Deposit Rs. 500.
Rates: Rs. 75 to Rs. 100 per program.

16 MM. SILENT

1. Source: Rev. H. R. Ferger. (See pp. 197) U.P.
Type: Educational, entertainment, religious. 300 films.
Rating: A.
Rules: Standard.
Rates: Re. 1 per reel, four reels for Rs. 3. 50% for succeeding showings. Above rates to missions and church organizations. To all others: Double fees.

2. Source: British Information Service, Eastern House, Man Singh Road, New Delhi.
Type: Educational, documentary. 20 films.
Rating: A.
Rules: Standard.
Rates: Free. Return postage only. No admission chargeable.

3. Source: Ama, Ltd., Hornby Road, Bombay.
Type: Entertainment, travel. 100 films.
Rating: B.
Rules: Deposit: Rs. 100 guarantee. 2 reels allowed per time.

Order Films From:

REV. H. R. FERGER
NORTH INDIA FILM LIBRARY
AGRICULTURAL INSTITUTE, P.O.
(ALLAHABAD DIST)

REV. R. G. KORTELING
SOUTH INDIA FILM LIBRARY
AROGYAVARAM
(CHITTOOR DIST)

A wide variety of 16 mm sound, and silent films, black-white and colour; 2×2 slides; filmstrips on religious and educational subjects; and recordings.

Write for Catalogues. **Price 5 as. each**

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THE C.L.S. FLANNELGRAPH CUT-OUTS

LIFE OF CHRIST BASIC KIT

Drawn by ISMENA R. WARREN

THIS IS WHAT THE KIT CONTAINS

- The Kit contains ten sheets (18″×22″) of figures ready to colour, mount and cut out. The figures have been beautifully drawn in clear black and white outline by Ismena R. Warren and lithographed on good paper.
- The ten sheets contain more than eighty individual cut-outs so designed that most of the Gospel stories can be illustrated by their use.
- Each sheet includes diagrams suggesting the way in which the figures can be grouped together with the background cut-outs to form the various stories.
- With the Kit is a folder of notes on the Flannelgraph method of visual education and instructions for the use of this Kit written by Dr. Donald F. Ebright, Secretary of the C.C.I.P.B. Audio-Visual Aids Committee. Mr. V. M. Koshy, Administrative Secretary of the India Sunday School Union, has also added notes on the use of the Kit with the I.S.S.U. Syllabus and Lessons.

The whole Kit costs only Two Rupees
(Postage, Registration and Packing 9 as.)

PUBLISHED FOR THE

Audio-Visual Aids Committee of the Christian Council of India, Pakistan and Burma and the India Sunday School Union

BY

THE CHRISTIAN LITERATURE SOCIETY FOR INDIA

(United Society for Christian Literature)

Madras Bangalore Mysore Colombo

Rates: Rs. 3-8 per reel. 50% for succeeding days. No admission chargeable.

4. Source: Patel, India, Ltd., Hornby Road, Bombay.
Type: Educational, entertainment. 150 films.
Rating: C.
Rules: Deposit (6 months minimum): Rs. 300 per subject (per reel?).
Rates: Rs. 3-8 to Rs. 7 per reel.

5. Source: Central Film Library, Ministry of Education, Government of India, New Delhi.
Type: Educational films—good. Over 75 films.
Rating: A.
Rules: Not over 1 hour shows, for educational, social and civic groups.
Rates: Free. Return postage only.

6. Source: U.P. Civil Secretariat, Information Directorate, Lucknow. U.P.
Type: Indian Information. 10 films. Also 35 mm. sound films.
Rating: B. (poor films).
Rules: Primarily for schools.
Rates: Free, for return postage.

7. OTHER FILM SOURCE POSSIBILITIES:
Your Provincial Dept. of Education.
Film and Camera Companies.
Other Information Services.
Publicity Departments of Commercial Firms.

8. 8 mm. Silent Movies:
Patel Ltd., Bombay.
Ama, Ltd., Bombay.
Kodak, Ltd., Bombay.

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CHAPTER XXXIII

WHAT TO LOOK FOR IN A FILM[1]

WE stand on the threshold of a new era in the use of audio-visual aids for our educational work in church and school. Evidences of this end include the following: a new awareness of the effectiveness of these tools, better films and lenses have resulted in a higher quality product, improved equipment is reaching India in increasing quantity, the missionary societies are urging their personnel to get better pictures for promotional work, and definite leadership is being furnished by the National Christian Council and the provincial councils.

There will be some people who use 2 x 2 Kodachrome slides, or a filmstrip set, or who impetuously add a motion picture to the weekly academic fare only to be disturbed over the fact that there are no short-cuts to success in audio-visual aids. The motion picture has no intrinsic "magic". These aids will not release the teacher from work. In fact these methods require more time. New tools require skills which take time and energy to master. But their value lies in that they enrich the curriculum and encourage increased learnings. There is a better retention of subject matter. There are great gains possible if we approach the use of these tools with skill and understanding.

Here are ten generalized principles to keep in mind if we are to use audio-visual aids effectively:

(1) The film or picture must be shown in an appropriate setting, that is, an instructional setting for the class, recreational for a social group, and devotional for a religious subject.

(2) The film must be selected and presented to the right group at the right time.

(3) The teacher must know the film and narration to be used.

(4) The teacher must prepare the group to receive the picture.

(5) The picture is a means, not an end. Hence it should be followed by a test, or questions, or discussion or meditation.

[1] WHAT TO LOOK FOR Series: No. 14, devised by D. F. Ebright, PH.D., 1947. Previously published (Council of Christian Education, 81 C.S.S., Jubbulpore, C. P.):

No. 1.—What to look for *in a Sermon*
2. *Book*
3. *Reading of the Bible Aloud*
4. *Story*
5. *Debate*
6. *Teacher*
7. *an Order of Worship*
8. *Sunday School (8a—Alternative Form)*
9. *School Building and Equipment*
10. *Hostel*
11. *Service of Worship*
12. *Village School*
13. *Village Home*

(6) The picture should be an integral part of the instructional plan and not an extra.

(7) Pictures should be differentiated for entertainment, instruction, or devotions.

(8) The projection equipment should be in good condition. Look to the lenses—clean them. Oil necessary parts of the projector.

(9) The projection room should be dark and adequately ventilated.

(10) Every effort should be made to eliminate distractions.

With these ten principles in mind let us raise the question: "What is the teacher to look for in a film". The same sense of evaluation must be developed in picking films as is used in choosing classroom textbooks. As a film is a means to an end we must carefully ask, "What are we seeking to accomplish?" The end may be: growth in character; modified behaviour; increased vocabulary; more rapid reading; a new emotional attachment to a custom, institution or object; a more intelligent reaction to a complex situation; the acquiring of a new manual skill; or religious conversion. This implies that the worth of a film must be judged in terms of its meeting the needs which the teacher is facing in a given situation. Whether we are teaching the life of St. Paul, intermediate general science, 3rd standard geography, leather work, English history or the socio-economic problems of the rural Christian community in the United Provinces we must both know our audience and the material we are using.

How then can we judge a picture? There are hundreds to buy, borrow, rent or order. Are they all worth the time and money? Definitely not. Film evaluation may be highly technical subject but it can become an increasingly fascinating hobby. With so many schools and churches beginning to project films for the first time and just beginning to show an interest in film analysis it is well to suggest certain basic questions to ask when screening a picture or when viewing it in a public showing. The following simple chart may be of some aid to the beginner.

1. Name of film..

2. Classification: 16 mm......Sound......Silent......Slide......Filmstrip...

3. Where Available..

4. Name of Reviewer..

5. Date Projected..

6. Audience..

REVIEW OF FILM

	1	2	3
1. Technical Standard	Poor, flicker, worn, inferior camera work, unpleasant titles, etc.	Average quality. Amateur.	Technically excellent. Professional. No distortion. Clear sound.
2. Authenticity	Propaganda. Distortion of facts. Half-truth.	Average reliability. "Denominational"	Authoritative.
3. Appropriateness for this group. (See ‡ b above)	Too difficult. Too easy.	Average audience appeal. Popular.	Excellent vocabulary. Good teaching.
4. Relation of Title to Contents	Misleading. Irrelevant material.	Appropriate	Contents meet instructional needs.
5. Appropriateness of film in comparison with other possible audio-visual aids	Less expensive materials would do as well. Try flat pictures, objects, flannelette board, etc,	Average Additional aids well improve instructional needs.	Definitely the best method of presenting the subject matter. Worth the cost.
6. Recommendations	Dated. Too localized. Subjact matter too specialized.	Can be used in India with adequate narration.	General subject treated honestly and realistically.

I have just seen a picture: 35 mm, 16 mm or 8 mm. What have I seen? Was the picture technically sound and artistically satisfying? If we are to hold an audience the picture must be pleasant to look at. Consider the modern "slick" magazine cover. Films produced without careful editing, disregard for a tripod, neglect of the basic concepts of composition, flicker, coarse dialogue, unethical scenes, or scenes that seriously "date" the picture may be so distracting as to interfere with the educational effectiveness. A film entitled "A Day in Chand Bagh" might well be an excellent production for missionary cultivation in the United States. But if the "hair-do", dresses, hats and shoes of the staff are of 1928, and not of 1940—1946 the out-of-date elements would impose decided limitations on the picture's effectiveness. One scene of 1928 in a History of Chand Bagh would add comedy: "Did they really wear hats like that"?

Is the picture authentic? Was it produced in the field or is it obviously an artificial creation? Is it real? This criterion differentiates classroom from entertainment films. A "documentary" film on "India in the Spotlight" that carefully eliminated any fact that might offend any Indian is not authentic. Likewise any picture of the Burma Campaign that showed only American soldiers being heroic, killed or captured, and minimized the Indian and British troops is not an authentic picture. Many of the so-called educational animated cartoons fail at this point, for in attempting to be amusing they negate much instructional value. A picture we use in church or school cannot compromise

with truth unless we are deliberately teaching children to spot propaganda. People want the facts.

A picture may be pleasing and authentic and yet be inappropriate for the maturity-level of the pupils. Is your audience to-be: 3rd Standard, high school, university, rural Christian, urban-mixed, or staff? The concepts in a subject-matter picture may be too abstract for your school. Inadequate knowledge backgrounds may mitigate educational value.

Have you been misled by the title of a popular motion picture? The hand of commercialism creeps in and excellent films have been released under catchy titles. Then too the title may be excellent but the material irrelevant. A picture, *Travel by Air*, concentrated upon the pretty hostesses, the comforts of air-travel, the friendly passengers, and the delicious meals served aloft. No attention was paid to global concepts, air-routes, great-circle arcs, travel time, radar, air traffic laws, and the problems of landing. The principal who pre-screened this film saved a science class from a wasted hour. The same film was used at a P.T.A. social hour with success.

Then can the lesson be taught with less expensive materials? Motion picture equipment and upkeep is expensive. It is unfortunately expensive if it does not perform a unique function. If models, flanelette boards, flat pictures, maps, posters, blackboard sketches will do they should be used. Movies are to be used when they tell the story better than any other less expensive educational material that is available.

And now you have seen the picture and checked the simple form. Do you recommend it? Would you advice me to show it? Yes, film appraisal can be a happy and educational experience.

CHAPTER XXXIV

AUDIO-VISUAL AIDS IN THE SUNDAY SCHOOL

V. M. KOSHY[1]

THE case for audio-visual aids in education has been made out already by the writers of various chapters. That the "eye gate" and "ear gate" are the most effective ways of appealing to young and old, will not be doubted by any teacher of today. And it has been well said that a child remembers 10% of what he hears, 50% of what he sees and 90% what he hears, and sees and does. There is nothing particularly new in this statement. Teachers of olden times were equally aware of its truth; but it has assumed added significance in recent years. And what is more important, the last five or ten years have seen immense strides in the technique by which the eye, hearing, and action are used in the process of education. Audio-visual aids have, therefore, come to mean a great deal today, in the field of Christian education and evangelism.

The question arises, "To what extent are these aids possible in the Sunday school?" There are over 21,000 Sunday schools in India and Pakistan, with nearly 42,000 teachers, and 880,000 scholars. They form a substantial section of the Christian enterprise and constitute a powerful force in the teaching ministry of the Church. When forward steps are being taken in increasing measure in respect of general education, those concerned with religious education cannot afford to lag behind. And it is important for Sunday school leaders to take note of improved methods being used by the teacher in the day school. The scholar in a Sunday school needs to associate it with feelings of pleasure, and joy, and activity, if his interest in his faith is to continue.

Audio-visual aids cover a wide range, from the use of models to the sound-on-film motion picture, or television. Conditions in India and Pakistan, however, do not allow the use of complicated and expensive machines as a general rule. The conveniences of electrified cities, are not available in the villages where the vast bulk of the people live, and what is possible in a city Sunday School is all too often impossible in a village. However, it is worthwhile to discuss the extent to which these aids may be used under varying conditions in this country.

1. Flat Pictures

This is one of the commonest ways of appealing to the eye, and includes photographic prints as well as printed reproductions from photographs or artists' drawings. Illustrations given in books also come within the category of visual aids. Unfortunately we do not have enough of biblical pictures for our purposes, and under present conditions it is difficult to import them from foreign countries. Nevertheless, some of them are available such as *Nelson*'s, *Shaw's*, *Perry's*, etc., and the keen teacher, finds more or less what he needs.

[1] Mr. V. M. Koshy, Administrative Secretary of the India Sunday School Union, Coonoor, Nilgiris, is an enthusiastic user of audio-visual aids.

One of the latest is the series by *Elsie Anna Wood.* These are available from the I.S.S.U. or the *United Christian Literature Society, Madras,* in the form of booklets or in packets containing sets to illustrate particular narratives of the Bible. The advantage in using this series is that they are the nearest approach to Palestinian life that we have in pictures, and are more suitable for use in this country than most of the others. They are colourful, bold in outline, and pointed in character, so that it is easier to get the message out of them than from many of the others that are often packed with details. It is necessary to warn ourselves of the fact that biblical pictures are not necessarily accurate. They are, after all, the products of artists' imaginations. Some pictures that come to us from western countries present Jesus very largely as a "white man" One of Copping's pictures, the cleansing of the Temple, depicts Jesus as a tyrant. Another, which portrays the story of the Wise Men, shows their number as three, though nowhere is this number made clear in the Bible narrative.

The value of pictures for worship and devotions has not been recognized by our Sunday schools. Reproductions of great religious paintings are of immense help to a group of young people gathered together for worship. However, a single picture on which to focus their attention at the time is more effective than several.

One of the most important things to remember in using pictures is that the needs of children are different from those of adults, and that their value depends very largely on how the class is trained to absorb the appropriate message from each picture. A child or an adult with normal eyesight will "see", but may fail to "observe" what a picture is intended to convey. One who is not used to pictures, or is illiterate may get a ridiculously wrong impression of the things represented in form and colour, in a picture. To him a church in a picture may seem to be anything but that; and a lion on paper may have little resemblance to one in real life. A child, again, understands simple direct representations, but it takes training to enable him to appreciate symbolism.

Colin Beale quotes the following criteria for evaluating pictures as applied to school children.

"Is the picture:

1. Purposeful? Relevant? Significant? Does it show clearly the points desired? Will it really aid? Specifically, just how?
2. Truthful? Accurate? Authentic? Up-to-date? Complete?
3. Easily understood? Simple in composition? Proper in emphasis?
4. Stimulative? Interesting? Will the pupils study it seriously?
5. Suggestive of reality? Action? Contrast? Comparison? Continuity?
6. Appropriate to age and grade levels of pupils?
7. Artistic in elements, composition, lines, colour and finish?
8. A good print? Clean and distinct? Free from blemishes and soiling?
9. Of practical size? Large enough to show details, and small enough to be easily handled and used?"

The fact that there are not enough cheap pictures for the average Sunday school in this country is a challenge to our Church. Christian printing presses have a special responsibility towards the Church in this respect; for, they are the means by which the demand for pictures can be met. Attempts, are, also being made to raise artists who are nationals. There are already a few of them. Frank Wesley of N. India, a student in the Lucknow School of Arts, has produced a number of biblical pictures. Sunday schools must take their share in this task. They need to encourage scholars to draw, and to stimulate religious art. The teacher might, with advantage, get his class to use their imagination to make representations of the lesson in the form of impromptu drawings. It is one of the finest ways of inducing visual aids in Sunday school work.

2. The Flannelgraph

American missionaries have been mainly responsible for the introduction of this device into this country. Within the last five years it has become fairly common throughout India and Pakistan. And of the many types of visual aids being advocated, the flannelgraph stands the chance of being more widely used than any other. It is indeed a unique and useful aid specially in telling stories to children, and considering the extent of illiteracy in this country, it is just as valuable for teaching the adults as well. Its advantage is that it allows the visual representation of the story to be built up as the teacher goes along. The characters appear only as they come into the story, so that the attention of the children is not distracted by the crowd of them in a printed picture which presents the entire incident all at once. The method is simple, the materials comparatively inexpensive; and the cut-outs can be used again and again.

The basic point in the construction of the flannelgraph is that two pieces of rough-surfaced material will stick to each other. A plank of wood or board of any kind, two feet by three feet, provides the frame work. Then cover it with flannel, flannelette, or khaddar. A simple background such as a distant landscape or an interior scene painted on the same kind of materials as is used to cover the frame work, is laid towards the top, and the foreground figures and objects (relevant to the story) are then placed on the story one after another as the narrative proceeds. The figures and objects may be drawn on paper and coloured, or cut out from magazines or old pictures. Small strips of flannel, are pasted on the backs of these forms, so that when they are placed on the flannel covered board they adhere to it. They are removed and replaced as is necessary for developing the story.

Ready-made flannelgraph boards, folding and portable, with props to make them stand on level surface, and cloth bags in which to carry them, may be had from the I.S.S.U. Book Depot, Coonoor. Those who do not wish to spend money on it, will be able to improvise them as suggested above. A variety of cut-out sheets bearing on selected narratives of the Bible, are also available. Those imported from abroad, have more variety and are more colourful, though they are more expensive. Others made in this country are cheaper, but are at present mostly plain. The following list will be found useful:

Flannelgraph Handbooks 1–6– N.S.S.U., London; Flannel Board Cut-outs, Books 1 and 2, S.P.C.K.; Story-o-Graphs, American; Khaddar Kraft Kut-Out sheets 1–5. E.L.D., Calcutta; Life of Christ Flannelgraph Kit, C.L.S., Madras. (This is useful for teaching I.S.S.U. Junior Lessons Volume 1, also.)

In using the flannelgraph it is essential that the teacher shall not only be familiar with the story, but that he shall have rehearsed it, so that he knows exactly at what point each figure or object has to be placed on the board, and where he is to put it to get the correct perspective. With experience, a teacher discovers how to vary this method. Sometimes he might get a child or another teacher to place the figures, while he tells the story. The flannelgraph is also effective in reviewing lessons, and children themselves may go through the story without the help of the teacher. For larger audiences in a village, or for outdoor work it will be necessary to have a larger frame work and cut-outs. Common single figures or groups of figures may well be used for more than one narrative, but it is desirable to keep the special groups intended for particular lessons, marked, and in sets so as to avoid having to look for them from a mixed assortment of cut-outs.

3. Maps, Charts, Diagrams, Graphs

These again are methods that have been advocated throughout the history of education, and used in greater or lesser degree all the time. Progressive Sunday schools use them today, but what is needed is more widespread practice, in city and village sunday schools alike. It must be admitted that a variety of these in the printed form is not available in India, nor in adequate quantities. The point to be remembered is that most of these can be readily prepared by Sunday school leaders. As far as the less advanced village teachers are concerned, the plan adopted in various centers in India, is to get them together for a training institute once or twice a year, where they could prepare with expert help, the necessary maps, charts, etc., for use during the course of the year for a given syllabus of lessons. It is, undoubtedly, better for teachers to prepare their own equipment, rather than make use of commercially produced articles. Thus a group of teachers brought together for a training institute might prepare maps of Palestine, of the journeys of St. Paul, of the kingdoms of Judea and Israel, etc. As for charts, they might require those showing the history of the Kings, of the rise and fall of the kingdoms of the Old Testament, the chronology of the prophets, the manner in which the Bible came to be, the story of early Christianity, the growth of the missionary enterprise, etc. Let it be noted that all these are intended for *study*, not for posters, and must be related to the mental development of the pupils. Small children without a historical sense, would hardly understand a chart intended to make clear the chronology of Kings. The '*wall chart*' is of real help class teaching. The family '*tree*' is valuable when dealing with genealogy, for instance in teaching the stories of Jacob and his sons, or about the twelve desciples of our Lord, and again in grouping the parables, particularly in the higher grades in Sunday school. Symbols (or pictorial representations) are now commonly used in some charts instead of printing the names or titles according to traditional patterns. Graphs again are of value.

These may take several forms one is the *'line graph'* such as is used to show the temperature of a patient in the hospital. On the other hand the *'bar/graph'* with coloured vertical blocks are more striking to the eye. A Sunday school might decide to raise money to support a missionary sent by their Church to Africa, or Indonesia. A bar graph would then show the amounts raised every Sunday. It stands on the wall to show children the extent of their achievements, and would be a great stimulus to increased giving on their part. The same method may well be applied in respect of Bible knowledge also.

It is necessary for every Sunday school to have a library of its own, and to stock specimen maps, charts and diagrams to be used by teachers. *Phillip's folding maps of Old and New Testaments, Bacon's Bird's-Eye-View map of Palestine, Stirling's Atlases of the Life of Christ,* of *St. Paul's Journeys, and of the Old Testament* are all of great value. But the teacher must learn to use his own resources, as when the training school in Moga (Punjab) got the children to make use of the ground to make a relief of Palestine with rivers, valleys, mountains, cities and villages. No imported and expensive map could be a substitute for the somewhat crude work done by children with spades and water cans, in cutting out the ground into the physical and geographical shape of Palestine; besides it cost them nothing in the way of money.

4. Models, Sand Trays, Wooden Cut-Outs

The use of *models,* are among the simplest in visual-aids, though the average teacher in this country takes the line of least resistance by verbal description, instead of making use of the blackboard or actual representations. He needs to take into account the fact that the narratives of the Bible which he presents took place thousands of years ago in a distant land, and that adequate background knowledge is necessary for the child to appreciate the spiritual truths which are embodied in them. Models of tools used by carpenters in Palestine two thousands of years ago, would make all the difference to a class studying the early life of our Lord, and the model of an altar used in the time of Abraham four thousand years ago, would make the story of the sacrifice of Isaac, more vivid. Peter could not have sat balancing himself on the ridge of a sloping roof, and prayed for hours, without falling down and breaking his ribs; and the model of a Palestinian house with terraced roof would make the story intelligible to the child who lives in a country where it is the custom to have sloping roofs.

Sand-trays, again, are often considered as mere playthings for nursery children; yet their value in the Sunday school is unlimited. Whether worked on by children as "expression work" after a story, or prepared beforehand by the teacher himself, it is an excellent visual-aid. Sand-trays cost practically nothing. A few square feet of ground with bricks all round it and a few inches of sand within, would constitute a sand-tray and it is possible even in a village. A few deal wood planks nailed together, having also a bottom, make a portable sand-tray which can be used week after week. It is not necessary for the poor children of our country to have an expensive material like Plasticine for making models. Ordinary clay from the field and a pot of water are quite good for the purpose; and almost

any Sunday school can manage it. The value of visual aids does not depend on the expensiveness of the materials but in the extent to which they serve the purpose of teaching. The Lutheran Sunday school in Ranchi, Bihar, presented a complete set of wooden cut-outs to illustrate the story of the birth of our Lord as an exhibit at the Triennial Sunday School Convention of India and Pakistan held at Madras a few years ago. Unlike improvised models, this lends itself to permanent use any time the lesson is taught. This model was prepared with the assistance of a carpenter and prepared out of thin planks of wood, or ply-wood, and painted in appropriate colours. The trained teacher uses his own resources to prepare various types of models, and it is part of the work of the weekly Preparation Class for teachers in a Sunday School, to help untrained teachers to make models suitable for the Sunday's lesson. Models may be made of paper, plywood, wooden planks, in fact with a large variety of common materials.

In preparing biblical objects such as are mentioned above most Sunday school teachers require background knowledge. Apart from the usual reference books like Bible commentaries and dictionaries, a variety of cheap books are now available from Christian book depots in India. Some of these are mentioned below:

Practical Books: Palestine and Beyond, by Winifred Warr; Drawing Bible Pictures, by H. W. Whanslaw; Making Bible Models, by H. W. Whanslaw; More Bible Models, by H. W. Whanslaw; Bible Puppetry, by H. W Whanslaw; More Blackboard Drawing, by Higham; Handwork for Teachers and Children, by O. Sanger-Davies.

5. **Projected Still Pictures: The Magic Lantern and Filmstrip Projector**

The magic lantern has been widely used, by churches and missions and especially certain interdenominational youth organizations like the Y.M.C.A., and the C.S.S.M., during the past fifty years. It has the advantage of being robust, simple and straightforward for use, and capable of clear projection in large size. And a large variety of magic lantern slides are available. It is of special value for the villages, since it can be operated with kerosene. However, very few Sunday schools, are in a position to own one individually.

The Slide and Filmstrip Projector is a development of the magic lantern. It is compact in size, portable, and light. It is no more difficult to carry it about than a small handbag. The one disadvantage about it is that the usual models now available in the market are run on electricity, so that they are only useful for centers that are provided with this convenience. Since electrification of the countryside is going on apace in this country, there is, undoubtedly, a great future for this type of projector, in our Sunday schools. A Petromax variety of this projector is being made in U.S.A. for operation with kerosene, and that will be of immense use for village work. The S.V.E. and Aldis projectors are quite common, though there are many others in the market. These take both slides and filmstrips. The filmstrip projector is particularly valuable since a large variety of cheap filmstrips are coming into the market. *The A.V Aids Committee of the Christian Council of India and Pakistan have two film libraries,* one in South India, and the

other in North India. Pakistan is fast developing one of its own. And all of them have a variety of filmstrips of biblical subjects. Pioneering efforts are also being made to produce filmstrips in this country.

The Sunday school should regard the slide and filmstrip projector as a powerful ally in teaching the Bible. For class teaching still pictures in a series representing a story or a series of lessons, are of the greatest value. The fact that the time taken to explain each slide or frame in a filmstrip can be regulated at will by the one who operates the machine, makes it convenient for the teacher whose running commentary should accompany the show. It will be noted that the projection of pictures is not a substitute for teaching. It is only an aid intended to illustrate the lesson. It may be wise to show the pictures after the lesson is over. Nor is it necessary to have a show after every lesson. In some cases it is better to have a series of lessons in a unit, and climax it with a show covering the entire unit of lessons. Thus a Scripture class in a day school went through the book of Acts for several months, and then had a show for an hour and a half consisting of five filmstrips on the life of St. Paul, beginning with his conversion and ending with his imprisonment in Rome; a running commentary accompanied the show. The present day filmstrips are being made increasingly in colour. This adds to the interest of the class. "Life of Jesus," "Dawn of the Christian Era," "Acts of the Apostles," "For God So Loved The World," "Old Testament Geography," "New Testament Geography," "Illustrated Hymns," "Pilgrims Progress" are the kind of filmstrips and slides that are obtainable from the N.C.C. Libraries. The rental charges on filmstrips from these film libraries are low; a collection taken in the Sunday school will probably meet the expenses involved. The cost of these projectors, however are heavy, as they range anywhere from Rs. 300–Rs. 550, in this country. Very few Sunday schools will be able to raise the amount individually. Regional or denominational Sunday school unions might well own projectors and send them around to their respective areas. It should also be possible for groups of churches and missions to have projectors for use in rotation among their constitutent units.

6. The Movie Projector

This is the latest addition to audio-visual aids in teaching, and its use with Bible lessons is capable of counteracting the influence of the public cinema on young people, to a large extent. Those with silent moving films and others with sound are obtainable, as also a variety of films from the N.C.C. film libraries. The cost of the two kinds of machines, again, are too prohibitive for the average Sunday school. The silent movie projector may cost anywhere form Rs. 1,000 to Rs. 2,000 and in the case of the sound projector it ranges from Rs. 2,500—Rs. 3,500, in this country. The only way by which Sunday schools can have access to this great technique is by pooling resources in groups, or by churches and missions owning machines. Films also are expensive, but the film libraries will rent them out at moderate charges to Christian groups.

The movie film would seem a luxury, for Sunday schools, though they are much to be desired. Nor is it to be used in the place of the Bible lesson itself. It serves its purpose best as a review of the lesson, or of a series of

lessons. "I am the Way" series consisting of such films as "The Boyhood Home of Jesus," "The Ministry of Healing," "Hours of Trial," "The Living Christ" etc., "Word of God in India," and others produced in India such as "Love Diven," "The Prodigal Son," "The Good Samaritan," "The Heart of India," are some of the films that are obtainable from the film libraries. *J. Arthur Rank Organization Ltd.*, in Britain, has produced some excellent sound films for use in Bible teaching. Those on St. Paul—"The Road to Damascus," "The Way of Salvation," and "Faith Triumphant"—are amongst the finest and most inspiring reproductions of that great epic that we know of. There is no doubt at all that many more will be available in the period ahead of us. Those in colour will have added attraction. The motion picture in the Sunday school is, surely, one of the best ways of redeeming the child of the present age from the counter-attractions of the secular cinema which is fast ravaging our country. The Sunday school can only ignore these new devices and techniques in teaching at its own peril; for, when the world around the child is seeking to allure him away from religion, by offering him many a substitute satisfaction, the Sunday school can be made a home of happy experiences for the child, one to which he would want to return Sunday after Sunday. Apart from the personality of the teacher and the grace of God, techniques are powerful factors in the education of the child; and audio-visual aids have come to stay. We must guard ourselves, however, against the "servant" of the Sunday school teacher becoming his "master"; "means" do not constitute "ends", in Christian education.

One of the least expensive books which gives a comprehensive account of this subject, is *Look and See* by Colin Beale. *Projected Visual Aids in the Church* by W. S. Hockman is another valuable volume though it is expensive. *The India Sunday School Union* stocks books on this subject at their book depot in Coonoor and other equipment described in these pages. The Union has an audio-visual aids section in the book depot with a complete projector unit, and a full-time trained technician who would attend to enquiries. Certain aspects of the work of the Union were filmed at the time of the last I.S.S.U. All-India Triennial Convention held at Yeotmal, Berar, and this film is available for use, free of charge, for any Christian institution. It is entitled *The Christian Child in New India* and is in colour.

CHAPTER XXXV

AUDIO-VISUAL AIDS IN ADULT EDUCATION IN INDIA[1]

Introduction

FAULTY education is as bad as no education. Indeed it is worse. One of the great difficulties in adult education is the faulty learning of the adult in early life. Before he can begin to learn he must *unlearn* a great deal. That process of unlearning is very often a painful one,—painful not only for the learner but also for the teacher. During this process of unlearning which involves the breaking up of old established habits, modes of thought and reaction grow up mental conflicts and social tensions which some times mar the happy relationships which should exist between teacher and taught and between groups of fellow-learners. Many an educational voyage ends in disaster for the adult,—and for that matter for the teacher of adults also,—because the inevitability of this essential period is ignored by most educators. Anything that can be done to produce conditions which will minimise the difficulties of this transitional stage in the adult learners' pilgrimage, should be encouraged even though it involves the educator in greater expenditure of energy, time and emotional as well as spiritual endeavour.

In India one of the basic defects of all learning is the lack of co-ordination between our different faculties and innate powers. The ear and the eye are not trained to work together that is why defects in pronunciation, particularly in the speaking of English or of any other foreign language, can be noticed among students and other learners who have the opportunity of hearing the language in question spoken correctly almost in daily lives. Similarly there is very little scope given for learning by doing in our educational organisation. Education and learning are often thought of in India as matters purely of listening and taking in impressions. In fact as one talks to the average person in our country,—particularly among the older generations,—one is impressed by the fact that ability to learn is considered to be a matter of possessing a good memory and little more!

The constantly growing population of our country,—growing in ignorance as well as in numbers,—constitutes a massive problem. Ordinary methods of education cannot hope to solve it. Indeed the august official with the puny mind who is often in the seat of the mighty in the educational set up of our country is often led to speak in terms of despair. Witness the tendency to say that the only way of tackling the educational problem of this country is to educate children and to establish more primary and village schools. This is not unmixed heresy but it does constitute unmixed heresy when it is coupled with the tendency to say that all expenditure on the education of adults or even on the continuation education of young people in their teens is pure waste. It must be allotted in practice and increasing force in all educational work from the infant stage to the very end of adulthood. Our teaching

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and understanding of poetry and drama would be far more thorough and effective if we used audio-visual methods for the use of these methods also involves a certain amount of motor activity. In India it has been the practise of old for groups, large and small, to collect and sit and listen to some one who is reciting or holding forth in peroration. Literally multitudes (if we think of the country as a whole) spend their late evenings in this way. Think of the small groups making music and song,—much to the annoyance and inconvenience very often of their neighbours,—right through to the early hours of the morning! Think of the '*kathas*' and the perorations let loose on our people night after night in village, town and city. And yet it would be idle to imagine that people always *learn* by going and sitting among the many who congregate for such things. It is possible to sit and listen just as much as it is possible to *sit but not listen.* It is possible to listen and understand just as much as it is possible to sit and listen but *not* understand. If, however, the total personality can be touched and the organs of the eye and the ear can be effected the educator gives himself a far greater chance. He gives himself an even greater chance when he invites the audience to exercise their vocal powers also. If he can set in motion processes which will 'tickle' them into a desire for expression by his concerted approach to all these faculties he is well on the way to success.

Such is the contribution the Audio-visual technique can make to the education of our people. This includes the use not only of the slide and the picture but also of dramatisation and group motor activity. For a group engaged in motor activity is not merely accomplishing something for itself it is exercising an audio-visual influence over others. That is why I am firmly convinced that the development of the Audio-visual technique should include the training of groups in dramatics and in other individual as well as group activity. The value of stopping the showing of a picture at a convenient stage perhaps in a second showing and of trying to help the audience to express themselves in some similar way is simply incalculable. But the educator who would attempt this must make sure of his ability to carry through this effort.

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